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BLISTER RUST CONTROL WORK

IN THE

EASTERN STATES

1939

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REPORT OF

COOPERATIVE BLISTER RUST CONTROL ACTIVITIES AND ACCOMPLISHMENTS

IN THE NORTHEASTERN STATES*

CALENDAR YEAR 1939

ALSO

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COOPERATIVE BLISTER RUST CONTROL ACTIVITIES AND ACCOMPLISHMENTS IN THE NORTHEASTERN STATES

This report is a detailed summary and analysis of blister rust control activities and accomplishments in the Northeastern States for all years and especially gives the pertinent facts regarding the 1939 work. The information is segregated by programs, each being complete in itself and divided into the various projects - Ribes eradication, nursery sanitation, Ribes nigrum elimination, pine and control area mapping, canker elimination and field studies. In addition, the results for all programs are summarized and the status of each project indicated. The report is based on the yearly statistical records submitted by the state leaders and general observations made by the Regional Leader. The results accomplished are due in a large degree to the loyalty, enthusiasm, initiative, and good judgment of the regular supervisory force which performed its work in an efficient and effective manner. No attempt has been made to discuss future plans, since they will be presented in separate statements as needed.

White Pine Conditions

Based on the cartographical survey of 1925, the white pine crop in the Northeastern States comprises 7,667,127 acres and has a normal commercial value of $315,726,491 (Table 114). This acreage is classified as follows: Pure pine (80 percent or over), 2,808,179 acres; mixed pine (21-79 percent pine in mixture), 2,921,434 acres; and pine stocking and restocking in other types, 1,937,514 acres. Of this total acreage, 71.3 percent is located in the States of Maine, New Hampshire and New York. White pine is the most important tree in the extensive territory where it occurs in pure stands, or where it constitutes a high percentage of the trees in mixed types (See Page 7). In such situations it covers a larger area, is used for more purposes, and brings a greater return than any other species. For several years, the lumber cut of white pine in Maine and New Hampshire has been about 65 percent of the entire lumber cut in these two states. In many sections, white pine is being produced on a sustained yield basis, notably in Plymouth and northern Worcester Counties in Massachusetts and in southern Cheshire County, New Hampshire. These conditions exist today in spite of about 300 years of logging. The management of white pine as a permanent crop both on farm woodlots and on wild lands is essential to maintain the prosperity of the region.

The rate of growth of white pine on good sites out-ranks all other hard or softwoods. In many instances, white pine constitutes a bank reserve for rural residents, especially farmers. Without any expenditure for cultivation, this tree has been the means of reducing or eliminating mortgages, educating children and often providing for old age independence. A high percentage of the wood-using industries in the Northeastern States use white pine in the manufacture of hundreds of commodities including boxes, toys, matches, pails and screen doors. It is also used for interior and exterior finish of homes. The use of knotty pine for interiors and pine slabbing for cabins is becoming more prevalent. The logging and manufacture of white pine provides employment for tens of thousands of persons. In spite of competition by substitute containers, the manufacture of wooden boxes continues at a fairly good volume, since many commodities require a more safe type of container than are offered by the wood substitutes.

The scenic, recreational and watershed protection value of white pine in the Northeastern States probably equals or exceeds its commercial worth. The region is becoming increasingly popular as a summer and winter playground, and its attractiveness in this respect is due in no small degree to the white pines which are green throughout the year. In the lake and lower mountain sections, white pine add greatly to attractiveness and popularity of the resort centers. The beauty of many scenic places is frequently due to the fascinating pine growth in some unusual situation.

White pine has been extensively planted for ornamental and reforestation purposes throughout the Northeastern States. During the period 1931 to 1939, inclusive, the state nurseries in this region distributed 85,958,539 white pines, 67.8% of these trees originating in the New York state nurseries. In Rhode Island, where there was no state nursery, during this period, 1,674,923 pines were purchased from out-of-state nurseries. Also, in the other Northeastern States many plantings were made from stock obtained from private nurseries

Ribes Conditions

Wild Ribes occur more or less generally distributed throughout the white pine region of the Northeastern States, but vary locally as to site, species, size, and abundance. Nine indigenous species have been encountered in control work, four being gooseberries and five currants, exclusive of Ribes vulgare which is considered an escaped cultivated red currant. The number of Ribes varies from 100 or more per acre in some sites to few or none in others. The aggregate, however, represents many millions of such bushes, as evidenced by the eradication of 261,649,297 wild Ribes in the Northeastern States during the period 1918 to 1939, inclusive. It has been determined by Fivaz and others that shade is an important factor in eliminating and suppressing Ribes, that Ribes' seed remain dormant and viable in the duff for years, and that disturbance of the duff by logging, fire, animals, or mechanical means favors the germination of such dormant seeds. Therefore, Ribes are usually found most abundant in open situations, such as recently cut-over or burned areas, pastures, swamps, fence rows, etc. The cultivated Ribes problem is indicated by the 393,708 cultivated bushes that have been destroyed in applying control measures since 1918.

Pine Infection Conditions

Blister rust infection is general throughout the white pine range in New England and New York. Over extensive areas, from 1 to 20 percent or more of the pines are infected; and in many local pine tracts, from 50 to 100 percent of the trees are dead or dying. The amount of disease varies considerably in different localities and is directly influenced by such factors as the number of original infection centers caused by the planting of imported diseased pine, the distribution and amount of native pine, association of pine and Ribes, abundance of Ribes, climatic conditions, and the application of control measures. In Essex and Warren Counties, New York, and in the upper Connecticut River Valley region, where Ribes are generally abundant, pine infection is also heaviest; 11 to 20 percent or more of the trees being diseased. In southern New England and in most of southern New York, less than one percent of the pines are infected, except in a few limited areas.

Blister rust has existed in Pennsylvania and New Jersey for several years, but was not reported on native pines in the former state until 1927, and in the latter during 1934. The relatively slow spread of the disease prior to that time may be attributed chiefly to the fewer plantations of imported diseased stock and to the localization of native pine areas. Studies, made in unprotected areas in Pennsylvania during December, 1934 and January-February, 1935, show that the amount of disease is increasing at an alarming rate. Ten plots, comprising 9½ acres, were laid out in the counties of Clarion and Potter. These plots contained 3,984 white pines, of which 2,618, or 66 percent, were infected with 10,605 cankers. The intensification of the disease is indicated by the fact that 62 percent of the cankers were of 1930 or 1931 origin. Fifty percent of the infected trees had trunk cankers and over 14 percent of the diseased pines had already been killed.

The scouting work in New Jersey during 1934 revealed 17 scattered infections on native pines in the township of Montague in the northwestern part of the state. A pre-eradication survey in the township of West Milford in Passaic County also showed several spot pine infections, the heaviest being on a property where Ribes nigrum had existed up to a few years ago.

During 1934, plot studies were made to determine the amount of blister rust infection on white pine in unprotected areas. A total of 45 plots, comprising 31.2 acres, were established in the States of New Hampshire, New York, Vermont, Maine, Massachusetts and Pennsylvania. These plots contained 17,569 white pine, 49.9 percent of which were infected with 22,238 cankers. Over 37 percent of these infections originated during the years 1930 and 1931, which shows the danger of delaying protection work.

An additional study was made in a 9-3/4 acre plot in an unprotected area in the township of Minot, Maine. Over 49 percent of the 5,262 pines were found to be infected. In this study only the age of the oldest canker on each infected tree was recorded, consequently there is no information available on the total number of cankers.

Similar plot studies were also made during the fall of 1937, W.P.A. laborers being used to assist the district blister rust control leaders in obtaining the pine infection data. In the unprotected tracts, studies were made in 83 plots, totalling 85¼ acres, in 61 townships in Maine, New Hampshire, Vermont, New York and Pennsylvania. A total of 68,829 white pines were examined and 14,132, or 20.5% of the trees were found infected with 23,108 blister rust cankers. Over 54% of these cankers had originated after 1930.

General Summary of Blister Rust Control Accomplishments in the Northeastern States During the Period 1918 to 1939, Inclusive

Ribes Eradication

The present total control area in the Northeastern States comprises 13,652,432 acres. Initial protection has been established on 76.8% or 10,482,698 acres, by the eradication of 215,312,405 wild Ribes and 765,633 cultivated bushes. There still remains 3,169,734 acres in need of initial control work. Most of the unworked areas are located in New York, Maine, Vermont, New Hampshire and Pennsylvania - (Table 97 - also map on page 136). Since 1922 a total of 3,742,997 acres has been re-examined for Ribes. This reworking resulted in the destruction of an additional 45,389,330 wild Ribes and 75,672 cultivated bushes on 35.7% of the total area initially protected. The acreage protected initially or re-examined under the various Emergency programs since 1933 represents 37.1 percent of the total area worked in this region during the period 1918 to 1939, inclusive.

The Ribes eradication work conducted under the Emergency programs since 1933 resulted in increasing the area protected by 5,579,990 acres, or 219.0%, more than what would have been accomplished if only regular money had been available. This conclusionis based on the following analysis. During 1932, the last year

prior to the advent of the Emergency programs and the decrease in the regular appropriation, $94,604.62 regular money was expended for salaries and expenses of the state and district leaders in this region, and a total of 544,620 acres were cleared of Ribes. Since 1932, regular funds for cooperation with the states in this region have averaged only $42,791.58 per year. During 1932-1939, if Emergency money had not been available, the regular allotment for cooperation with the states would probably not have exceeded $50,000 per year. This would have necessitated a reduction in the district leader personnel and a corresponding decrease in the amount of control work performed, since under the regular program the acreage protected depends chiefly upon the success of the district leaders in securing local cooperation. Assuming that the decrease in the acreage protected would be comparable to the 47.1% decrease in regular funds from $94,604.62 to $50,000 per year, an average of only 288,104 acres per year would have been protected during the period 1933-1939, inclusive. Actually, an average of 919,134 acres per year was cleared of Ribes in this region during the past seven years. The Emergency programs have made possible the systematic working of large areas, rather than individual units. They have also permitted the application of control measures on lands where such work was urgent, rather than basing the selection on local cooperation. It has been possible to work many remote areas, also tracts containing an abundance of Ribes, where the cost of control had prevented prior application of protection measures. This control work has served to eliminate many sources of infection that otherwise would have persisted. Thousands of men have received training in Ribes eradication work, and many of these persons will be available for similar work in the future. The training should also enable many of these men to maintain control of blister rust on their own properties. The Emergency programs have not only resulted in the protection of hundreds of thousands of acres of valuable pine; but of even greater importance, they have helped to rehabilitate thousands of men who were on the verge of despair prior to the inauguration of such work.

Ribes Nigrum Elimination

Black currant elimination has been conducted as a special project in four states - New York, Rhode Island, Connecticut and Massachusetts; a total of 102,999 Ribes nigrum and 44,664 other cultivated bushes being destroyed (Table 105). In Rhode Island and Connecticut, the work has been completed; and in Massachusetts, it has been finished on the mainland. Out of a total of 996 townships in New York, the project has been completed in 236 and partially finished in 39 others - (Table 106). In conjunction with the regular control activities in the other Northeastern States, such bushes have been eradicated in the worked portions of the control areas. Few Ribes nigrum have been found in these latter states. In Rhode Island and New York practically all of the work was performed under the Regular program; but in Massachusetts and Connecticut, 31.2% and 89.5%, respectively, of the total man days on this project in each of these states represented labor provided by Emergency programs.

During 1937 and 1938, a check was made on the original black currant elimination work in 20 townships in Massachusetts for the purpose of locating any bushes that may have been missed or replanted since the initial survey. On the whole, the results of this follow-up showed that thorough inspections were made in the initial check, but it is apparent that there were lapses in the original work and that some locations were missed, some sprouting had taken place, and there has been occassional replanting. In the 20 towns involved, 34,489 locations were inspected and 132 patches of Ribes nigrum containing 610 bushes were recorded. A total of 498 other cultivated Ribes were also located in the control areas in the 20 towns checked.

Nursery Sanitation

At the close of the 1939 Ribes eradication season, 52 nurseries had established and were maintaining Ribes-free sanitation zones; 30 of these nurseries being privately owned, 17 belonging to the respective states, and 5 operated by the Soil Conservation Service - (Table 103). Twenty-six other nurseries had established sanitation zones, but abandoned them prior to 1939. In the 29 nurseries worked during 1939, there existed at that time a total of 28,225,433 white pines.

Pine and Control Area Mapping

Pine and control area mapping has been performed in all the Northeastern States except New Jersey. Such activities were very limited prior to the advent of the Emergency programs for the reasons indicated under heading "Pine and Control Area Mapping" on page 31. Under the various control programs during 1933 to 1939, inclusive, 10,409,250 acres were mapped and 12,602,033 additional acres examined but not mapped due to lack of sufficient pine to justify the cost of control - (Table 109). A total of 13,359¼ miles of control area boundary lines were also painted in the field. Nearly 97% of the acreage mapped in the Northeastern States during the period 1933-1939, inclusive, resulted from work performed under the various Emergency programs. Very little of this pre-eradication survey work could have been conducted if Emergency funds and labor had not been available. The pine and control area maps are not only of assistance to the crew foremen on Ribes eradication work, but will be helpful in planning and executing future re-examinations of control areas. The detailed mapping has been completed in 1052 townships within the permanent pine production area and partly finished in 562 others. Spot mapping has also been completed in 1220 additional townships and partly done in 349 other townships. There still remains 1195 townships where no mapping has been done. As indicated in Table 110 detailed mapping has also been completed in 230 of the 1757 townships outside the permanent pine production area and partly completed in 15 others. A small amount of spot mapping has also been performed in 82 additional townships. It is questionable whether the remaining townships outside the permanent pine production area, especially in Maine and Pennsylvania, should be mapped due to the inaccessibility of most of the areas in Maine, and the scattered distribution and small acreage of the white pine units in Pennsylvania.

Canker Elimination

Canker elimination work was performed during the period 1932 to 1939 principally on publicly-owned areas in five states - Maine, Vermont, Massachusetts, New York and Pennsylvania - (Table 107). The project in Maine was conducted chiefly at Acadia National Park, where the cankers were removed from infected scenic pines. Technical supervision was, however, given to a few small private jobs in Maine where the owners paid the entire cost of the labor. The projects in the four other states were principally in connection with the elimination of cankers from diseased pines in publicly-owned plantations where the percentage of diseased trees exceeded 10%. The canker elimination projects resulted in the examination of 7,475,725 white pines, 264,712 of which were cut down due to fatal stem cankers. An additional 366,733 pines were treated for infection by removing 894,903 branch cankers and 8,086 stem lesions. These accomplishments are due almost entirely to work performed under the Emergency programs since only 2.7 percent of the total man-days on this project are chargeable to the Regular program

Field Studies

Many field studies have been made to determine the distribution and amount of infection on white pines, blister rust damage to such trees, spread of the disease from definite sources of Ribes, efficiency of Ribes eradication, improvements in control methods, and effectiveness of control. As a result of these studies, the following facts have been ascertained. Commercial protection of local white pine areas from blister rust by the eradication of Ribes within 900 feet is practical and effective. The width of the protection zone can be varied from 600 to 900 feet depending upon topography, species and abundance of Ribes, and density and height of the forest growth surrounding the pine area. Ribes nigrum are instrumental in the long distance spread and local establishment of the rust and should not be grown in pine regions. Blister rust is an insidious disease, the amount of infection and damage frequently being so inapparent to the layman as to cause a false sense of security. Blister rust on white pines is generally distributed throughout the region, the amount of infection depending upon the abundance, species and distribution of Ribes. Generally speaking, little new infection exists in protected areas, except those where the re-eradication work has been delayed too long. On the other hand, new infections are occurring in unprotected areas, being especially abundant in sections where Ribes are numerous, as in Pennsylvania. The disease kills white pines of all ages, and damage to merchantable-size trees is becoming increasingly conspicuous in northern New England and northeastern New York. Removal of branch and stem cankers from ornamental white pines is practicable, provided the trunks are not more than 2/3 girdled by the fungus. Such action is not, however, advisable in wooded areas, except in connection with regular pruning operations in young stands or plantations and then it should be limited to removal of infected branches from trees which do not have stem cankers.

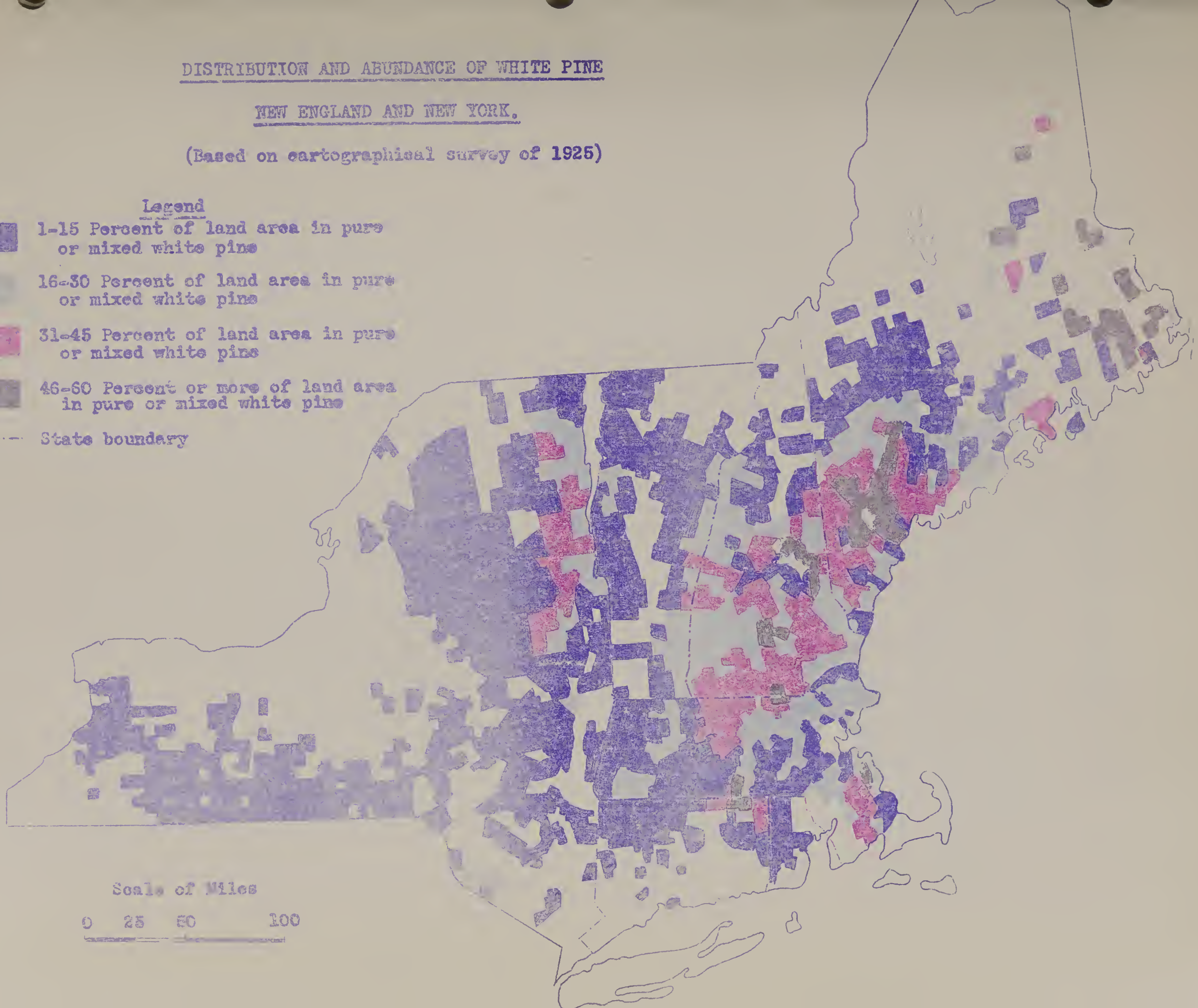
Relation of Cost of Control to Value of Pine

The cartographical survey of 1925 showed that there were 7,667,127 acres of white pine growth in the Northeastern States with a commercial value estimated at $315,726,491. The cost of all control activities for all phases of the work by all cooperating agencies during the period 1918 to 1939, inclusive, amounted to $11,869,202.65. State expenditures represent 19.5 percent of the total, those of local cooperators 9.3 percent, and the federal government 17.1 percent from regular funds and 54.1 percent from Emergency allotments. The total expenditure, however, represents only 3.8 percent of the commercial pine value. In the Northeastern States, the recreational, scenic and watershed protection value of the pine probably equals or exceeds the commercial value. Indirectly the educational and service work of the field personnel has been of great assistance in stimulating a general public interest in forestry, especially in the field of protection.

DISTRIBUTION AND ABUNDANCE OF WHITE PINE

NEW ENGLAND AND NEW YORK.

(Based on cartographical survey of 1925)



BLISTER RUST CONTROL ACTIVITIES UNDER REGULAR COOPERATIVE CONTROL PROGRAM IN NORTHEASTERN STATES

Policy

During the period 1918 to 1921, inclusive, the Federal Government cooperated with the states in experimental control work on a dollar for dollar basis. This work was conducted in each state under a cooperative agreement between the United States Department of Agriculture and the authorized state regulatory agency, the latter usually being the state forestry department. The control work was directed by the state officials under the general supervision of the Government, which paid a part of the Ribes eradication costs.

In 1922, a new program to secure the general application of control measures was inaugurated by the United States Department of Agriculture in cooperation with the state regulatory agencies. This program has been in operation since that time, but was altered during 1933 to 1939 to include the blister rust control work performed under the various Federal Emergency programs. The object of the regular cooperative work since 1922 has been to accomplish the control of the disease by providing pine owners with the expert advice, leadership, and supervision needed to secure prompt and effective local eradication of Ribes in the pine-growing regions. Prior to the advent of the Government Emergency work in 1933, all Federal cooperative expenditures were offset by state expenditures of at least equal amount.

Since 1936, responsibilities of the cooperating agencies have been as follows:

State Regulatory Agency (Usually the state forestry department)

(1) To furnish the services of a responsible state employee whose duties shall include nominal charge of the cooperative program and direction of the cooperative personnel in all matters concerned with carrying out any State laws and State policies with respect to blister rust control. (2) To cooperate with counties, townships, associations, and individuals in the local eradication of Ribes. (3) To provide such immediate supervision and checking of local eradication of Ribes as will maintain a standard of Ribes eradication satisfactory to the Bureau of Entomology and Plant Quarantine, and in so far as practicable to utilize the facilities of its organization for furthering the cooperative work. (4) To undertake directly or in cooperation with such State agencies as may have jurisdiction, such destruction of white pines and Ribes and such enforcement of State laws as may be necessary for the effective prosecution of blister rust control work, including regulation of the intrastate movement of blister rust host plants. (5) To furnish the necessary office space and facilities for the direction of the cooperative work at State headquarters.

The Bureau of Entomology and Plant Quarantine

(1) To furnish the services of a chief field leader who shall devote his entire time to the coordination and prosecution of the control activities of the cooperating agencies in accordance with working plans mutually agreed upon by the responsible representatives of the agencies concerned. (2) To furnish the services of such assistant field leaders as may be agreed upon from time to time in accordance with needs of the work and the availability of funds. (3) To provide these and any other cooperative employees with subject matter and technical information essential to the proper conduct of their work in controlling and preventing the spread of blister rust. (4) To enforce Federal regulations on the interstate movement of blister rust host plants.

In New England and New York, this program has been in successful operation since its adoption in 1922; but in Pennsylvania and New Jersey, the control activities were not organized on a similar basis until 1929. There were several reasons for restricting control activities outside New England and New York. The principal ones were the few introductions of diseased nursery stock from Europe, the relatively slow establishment and spread of the rust, the scattered distribution of the white pine, and passive public interest in forestry and lack of adequate state appropriations for control work. Hence, up to 1929, cooperative activities in the East outside New England and New York were limited to a small amount of scouting, nursery sanitation, eradication of new centers of infection, and to investigational and informational work. The natural spread of the disease during the past few years has greatly increased the infested area outside New England and New York. As a result, definite control programs have been adopted in Pennsylvania, New Jersey and other eastern states.

Since 1933, the regular cooperative control work has been necessarily curtailed due to the Emergency programs. The blister rust leaders have given complete supervision to all control activities conducted in their respective districts under the P.W.A., W.P.A., and regular cooperative programs. In addition, they have provided technical supervision for the control work performed under the C.C.C. and other Emergency programs. The number of district leaders in the cooperating states has not been uniform or constant. Generally speaking there has been a gradual curtailment. The regular blister rust control supervisory force employed in the Northeastern States during 1938, is shown in the following chart. As indicated, some of the employees worked part time. In New Hampshire, five district leaders spent only 3/4 of their time on control work. The cost of these part-time men while on other special duties were paid from state money other than that allotted for the blister rust program.

DISEASE BEET CONTROL, SUPERVISORY ORGANIZATION IN THE NORTHEASTERN STATES -- 1935

DIVISION PLANT DISEASE CONTROL
S.B. Fracker - Chief - Washington, D.C.
J.F. Martin - Ass't Chief " "

REGIONAL OFFICE - NORTHEASTERN STATES
E.C. Filler - Regional Leader - Cambridge Mass.
K.K. Stimson - Adm. Ass't " "

REGULAR CONTROL PROGRAM | W.P.A. CONTROL PROGRAM

M.G. Calderara - Control Spec
G.M. Dick - Temp. " "

D. B. Cheyne - Princ. Clerk
P.L. Rusden - Field Investigations

C.C.C. Program

Other Emerg. Programs

MAINE
W.O. Frost
State Leader

NEW YORK
H.L. McIntyre
State Leader

NEW HAMPSHIRE
L.E. Newman
State Leader

MASSACHUSETTS
C.C. Perry
State Leader

[illegible]
[illegible] Bradbury
District Leader

AUBURN
G.H. Kimball
District Leader

WARRENSBURG
N H Harpp
District Leader

SARATOGA SPRINGS
P.E. Barber
District Leader

KEENE
F.J. Baker *
District Leader

CONCORD
I.J. King *
District Leader

SPRINGFIELD
R.E. Wheeler
District Leader

BROCKTON
E.M. Brock
District Leader

[illegible]
[illegible] Curtis
District Leader

WATERVILLE
J.M. White
District Leader

HYDE PARK
H.G. Strait
District Leader

GLOVERSVILLE
J.W. Charlton
District Leader

LEBANON
G.F. Richardson *
District Leader

NORTH CONWAY
S.H. Boomer *
District Leader

SHELBURNE FALLS
G.S. Doore
District Leader

WORCESTER
Wm. Cleave
District Leader

BOONVILLE
T.P. Woolschlager
District Leader

MALONE
H.W. Holcomb
District Leader

LITTLETON
T.L. Kane *
District Leader

SCHOHARIE
H.J. McCasland
District Leader

ITHACA
C.B. Kresge
District Leader

VERMONT
S.D. Conner
State Leader

CONNECTICUT
J.E. Riley
State Leader

RHODE ISLAND
A.C. White
State Leader (Acting)

PENNSYLVANIA
R.P. Fatzinger
State Leader

[illegible] RUTLAND
[illegible] Mulholland
District Leader

ST. JOHNSBURY
E.H. Palmer
District Leader

Temporary Personnel
Assigned as
Needed

Temporary Personnel
Assigned as
Needed

TOWANDA
T.C. Williams
District Leader

CLEARFIELD
P.H. Simmonds
District Leader

BELLOWS FALLS
F.H. Rose
District Leader

Complete Supervision
Technical "

BROOKVILLE
M.J. DeBerti
District Leader

State Land Projects
2 State Agents

Informational and Service Activities

Successful informational and service activities by the district leaders are essential to secure the cooperation of individuals and towns in the application of control measures. The informational features are used to create general and favorable attention, interest and desire; while the service work is required to obtain general, prompt, and effective cooperation.

No satisfactory comparison can be made of the volume of the informational and service work performed in the different states since, as stated previously, the number of district leaders in the cooperating states has varied considerably. Table 4 indicates a general decrease in the use of informational features during the period 1934-1938, inclusive. This was due to fewer agents being employed and to the fact that such activities were purposely not emphasized as strongly as during the early years of the program. The control work has now reached a stage where the chief objective is to retain public interest in maintaining control and this can be accomplished with less informational work than was required during the early years of the program. On the other hand, such activities are still an important part of the program and must be continued in sufficient volume to maintain public interest and participation in the control work. Since 1933, the district leaders' activities in connection with the Emergency programs increased their supervisory duties and resulted in a curtailment of the informational and service work. Such activities were also limited in some of the states because local cooperation was not solicited due to economic conditions and the policy of conducting control work chiefly under the Emergency programs. In several of the states, the district leaders spent most of their time on mapping work during the winter months since 1933. The decrease in the amount of informational and service activities by the district leaders has to a large extent been offset by the intimate knowledge of blister rust control gained by several thousands of workers employed on Emergency programs since 1933. Nevertheless, too drastic decreases have occurred in these phases of our work during recent years, and action has been taken to correct this condition, as evidenced by the increased volume of all informational and service activities during 1939 as compared with the previous year.

In addition to the informational and service work performed by the permanent district blister rust control leaders, some activities of this nature were conducted by the state leaders and temporary state assistants. Since these latter employees did not submit monthly summary reports of their own activities to the Cambridge Office, the results of their efforts in this respect are not included in this report.

Summaries of the informational and service work performed by the district blister rust control leaders during 1939 are given in Tables 1 and 2, while the accomplishments for the period 1923 to 1939, inclusive, are indicated in Tables 3 and 4.

Table 1. -- International Activities Performed in Each of The Northeastern States During 1939 by The Permanent District Leaders

State	Meetings Addressed		Displays Placed	Items Published
	No.	Attendance		
Maine	1	20	2	-
N. H.	103	8,434	24	96
Vt.	19	320	88	52
Mass.	3	60	5	39
R. I.	8	758	4	3
N. Y.	52	3,964	36	81
Penna.	-	-	7	-
Totals	191	13,606	166	271

Table 2. -- Service Activities Performed in Each of the Northeastern States During 1939 by the Permanent District Leaders

State	Initial Interviews	Follow-Up Calls	Personal Instruction In Field (No. Individuals)
Maine	270	167	180
N. H.	1,383	1,525	330
Vt.	427	311	179
Mass.	342	161	120
R. I.	102	120	19
N. Y.	1,067	530	763
Penna.	109	34	132
Totals	3,700	2,868	1,723

Table 3. - Summary, By States, of Informational and Service Activities Performed by Permanent and Temporary District Blister Rust Control Leaders in Northeastern States During Period 1923-1939, Inclusive.

Informational

State	Meetings Addressed (1) No.	Meetings Addressed (1) Attendance	Displays Placed (2)	Publications Distributed (3)	Mimeographed Articles Distributed (3)	Items Published	Posters and Signs Placed (3)
Maine	1,303	30,761	1,022	65,652	4,846	577	18,302
N.H.	2,921	161,593	1,938	183,853	64,465	3,839	19,387
Vt.	835	25,067	706	30,653	192	544	3,561
Mass.	931	33,108	828	150,907	2,445	2,107	3,116
R.I.	255	18,961	126	35,331	2,250	397	2,104
Conn.	78	2,633	141	12,155	91	641	569
N.Y.	1,522	104,964	610	133,570	3,595	2,394	9,049
Penna.	1	40	21	-	-	4	-
Totals	7,826	377,127	5,392	612,121	77,884	10,503	61,038

(1) Includes Field Demonstration Meetings".
(2) Includes "Roadside Demonstrations".
(3) No record kept of this item after April, 1934.

In addition, during the period July 1 to December 31, 1922, the following general informational work was performed: 586 meetings addressed with an attendance of 30,895 persons, 374 displays placed, 35,067 publications distributed, 313 items published, and 2,500 posters and signs placed.

Service

State	Initial Interviews	Follow-Up Calls	Persons Instructed in Field
Maine	29,390	10,126	20,613
N.H.	32,249	29,575	19,292
Vt.	12,419	8,092	9,572
Mass.	33,133	12,374	12,215
R.I.	3,463	2,900	632
Conn.	4,076	3,033	1,533
N.Y.	27,321	20,010	18,759
Penna.	649	121	217
Totals	142,700	86,231	82,833

During the period July 1 to December 31, 1922, an additional 6,227 interviews and 1,924 follow-up calls were made, and 1,540 individuals received personal instructions in the field.

Data for Pennsylvania covers July 1, 1935 to December 31, 1939 when three district leaders have been employed.

Table 1. Summary of Yearly Informational and Service Activities Performed by Permanent and Temporary Blister Rust Control Leaders in Northeastern States During Period 1923-1939, Inclusive.

Informational

Year	Meetings Addressed (1) No.	Meetings Addressed (1) Attendance	Displays Placed(2)	Publications Distributed(3)	Mimeographed Articles Distributed(3)	Items Published	Posters and Signs Placed (3)
1923	1556	38,097	582	51,308	-	1,203	6,499
1924	1499	51,121	647	55,696	-	1,269	9,563
1925	1045	48,434	680	68,818	-	1,294	8,894
1926	700	38,100	624	76,697	-	1,202	8,056
1927	615	37,336	647	88,840	-	1,219	7,041
1928	522	23,987	492	62,706	14,953	1,109	7,268
1929	274	25,627	358	52,352	23,155	769	4,388
1930	188	9,297	342	48,124	20,715	518	3,445
1931	125	8,692	190	36,068	9,165	372	2,922
1932	271	18,678	121	39,562	6,416	340	1,758
1933	276	12,866	81	27,691	5,435	333	1,129
1934	106	10,361	104	4,277	45	182	85
1935	156	14,692	98	-	-	155	-
1936	93	7,048	84	-	-	112	-
1937	89	7,286	63	-	-	74	-
1938	117	11,905	113	-	-	81	-
1939	191	13,606	166	-	-	271	-
Totals	7,826	377,127	5,392	612,121	77,884	10,503	61,038

(1) Includes "Field Demonstration Meetings". (2) Includes "Roadside Demonstrations".
(3) No record kept of this item after April, 1934.

In addition, during the period July 1 to December 31, 1922, the following general information work was performed: 586 meetings addressed with an attendance of 30,695 persons, 374 displays placed, 35,067 publications distributed, 313 items published, and 1,869 posters and signs placed.

Service

Year	Initial Interviews	Follow-Up Calls	Persons Instructed in Field
1923	14,724	5,555	4,274
1924	15,984	6,804	6,198
1925	15,819	7,380	11,169
1926	12,153	7,309	11,659
1927	13,120	8,228	13,102
1928	15,644	8,625	8,952
1929	9,013	6,503	6,741
1930	7,905	5,568	3,166
1931	5,789	5,440	2,070
1932	6,996	4,968	1,984
1933	4,788	3,744	1,818
1934	4,379	2,667	2,123
1935	4,483	3,405	2,253
1936	3,330	2,407	2,266
1937	3,292	2,168	1,864
1938	3,581	2,592	1,671
1939	3,700	2,868	1,723
Totals	142,700	86,231	82,833

During the period July 1 to December 31, 1922, an additional 6,227 initial interviews and 1,424 follow-up calls were made and 1,540 individuals received personal

Cooperation

The informational and service activities have resulted in excellent public participation in blister rust control as evidenced by local cooperators making available $1,120,164.99 for such work up to and including 1939. However, only $1,103,312.02 of this amount was actually expended, the balance reverting to the contributors. All of the local funds were used on the regular control program except $63,441.92 which was spent in connection with Federal Emergency activities. During the period 1918 to 1939, inclusive, 42,481 individual cooperators expended $488,599.20 and expenditures of $587,575.45 and $27,137.37, respectively, were made from 2,239 town allotments and 45 county subscriptions. The individual cooperators actually furnished labor, or its equivalent in money, to eradicate the Ribes on their properties. Thousands of additional owners permitted the destruction of 929,721 cultivated Ribes without compensation. In addition to the above direct cooperation, thousands of individuals gave general support or personal aid to the control program. State expenditures, other than local cooperation, amounted to $2,316,785.60 of which $254,719.84 was spent on Federal Emergency programs.

Public interest and participation in blister rust control has been continued in the Northeastern States in spite of the depression and Federal Emergency programs. In fact, town cooperation reached high peaks in 1930 and 1931. Naturally during recent years there has been a decided decrease in the amount of local cooperation. This may be attributed chiefly to the fact that because of financial conditions and availability of Emergency funds little effort was made to secure such assistance, except to transport WPA crews. Tentative reports show that at the annual town meetings during March 1940, 43 towns in Maine and 40 towns in New Hampshire appropriated $8089.96 and $10,480.00, respectively, for blister rust control. The total for Maine includes $600.00 unexpended balance from three 1939 appropriations which were made available for work during 1940. In 1932, during the worst year of the depression, individuals actually expended more money on Ribes eradication than during the preceding year. Expenditures by 5,430 individual owners during the past seven years have amounted to $34,160.35, even though no special efforts were made to secure such cooperation. Only three of the Northeastern States decreased state appropriations for control work during recent years. In New York, state funds were reduced from $60,000 to $51,500 in 1935, and substantial reductions occurred in New Hampshire and Massachusetts.

Individual cooperation in wild Ribes eradication has been solicited in all the Northeastern States, except New Jersey. However, such efforts have been restricted in New Hampshire where the work is performed chiefly in cooperation with towns, in Maine since 1930 for a similar reason, and in Rhode Island where, except during 1920, state funds have been used to pay the entire cost of the limited amount of regular control work.

Town cooperation in connection with the Regular control program has been obtained chiefly in New Hampshire, Maine, and Connecticut. However, some town funds have also been provided in Vermont, Massachusetts, and New York. In New Hampshire, 1342 town appropriations, excluding those of 1940, have made available $414,795.00 for control work. This amount represents 74 percent of the total town money raised in New England since 1918. Many of the New Hampshire towns have consistently made yearly appropriations until their entire pine areas have been protected. In fact, initial control work has been completed in 166

New Hampshire towns. The town money in New Hampshire and Connecticut is turned over to the respective states and expended with additional state funds to clear definite town blocks of Ribes, irrespective of property lines.

In Maine, town cooperation has been obtained since 1921; 70 town appropriations making available $127,800.96 for regular control work excluding 1940. Up to 1931, this town money, except for a few thousand dollars, was used to employ town foremen who aided the individual owners in eradicating Ribes concentrations on their properties. A revised state policy was inaugurated in Maine in 1931 whereby the town funds were used to employ crews, as in New Hampshire, and the control areas were systematically worked irrespective of property lines, the state paying one-third of the costs of eradicating the Ribes. The 14 town appropriations in Vermont, totaling $1,422.75, have been used chiefly to pay the excess labor cost of foremen working with individual owners; but in one instance, a part of the money was spent in eradicating the Ribes on a town forest. Town money was secured in Massachusetts only during 1920 and 1921, when four appropriations, totaling $1,700 were made for control work in Berkshire County. The town contributions, other than appropriations, in the Northeastern States during 1935-1939 totaled $14,362.96. Practically all of this amount was spent on the WPA Program chiefly for transportation.

Table 5- Local Cooperation in Blister Rust Control Work in Northeastern States

1939

State	Individual Cooperation				Town Cooperation					County Cooperation	
	No. Cooperators			Amount Spent By Individual Cooperators	No. Town		Amount Town Money			No. County Allotments	Amount County Funds Expended
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.	Canker Elimination		Appropriations	Contributions	Appropriated	Contributed	Total Expended		
Maine	-	1	1	60.15	41	-	7.175.00	-	6.820.97	-	-
N. H.	-	-	-	-	35*	2	9.250.00*	263.94	8.941.51	1	69.94
Vt.	-	11	3	870.70	-	9	-	2.365.46	2.365.46	-	-
Mass.	175	73	-	276.00	-	6	-	3.862.89	3.862.89	-	-
Conn.	-	1	-	34.03	-	37	-	2.962.50	2.962.50	-	-
N. Y.	-	22	-	693.70	-	1	-	90.00	90.00	3	7.454.40
Pa.	-	13	-	9.00	-	-	-	-	-	-	-
Totals	175	121	4	1.943.58	76	55	16.425.00	9.544.79	25.043.33	4	7.524.34

1922 - 1939

Maine	621	10.449	19	83.678.79	703	12	127.800.96	944.39	117.810.98	-	-
N. H.	-	547	-	39.706.95	1.180	20	388.760.00	1.607.94	385.838.47	6	1.724.03
Vt.	172	2.089	8	68.963.19	14	42	1.422.75	17.950.89	19.146.80	-	-
Mass.	10.643	10.906	-	92.929.25	-	30	-	16.086.24	16.086.24	-	-
R. I.	-	2	-	31.36	-	-	-	-	-	-	-
Conn.	195	296	-	8.835.57	25	46	14.345.75	7.683.50	21.795.39	-	-
N. Y.	-	5.869	1	160.022.94	-	1	-	90.00	90.00	39	25.413.05
Pa.	12	289	-	2.189.23	-	-	-	-	-	-	-
Totals	11.643	30.447	28	456.357.28	1.922	151	532.330.46	44.362.96	560.819.88	45	27.137.32

1918 - 1939

Maine	621	10,479	19	84.841.86	703	12	127.800.96	944.39	117.810.98	-	-
N. H.	-	689	-	47.804.51	1,342	20	414.795.00	1.607.94	410.944.82	6	1.724.03
Vt.	172	2.150	8	72.984.30	14	42	1.422.75	17.950.89	19.146.80	-	-
Mass.	10.643	10.987	-	95.913.35	4	30	1.700.00	16.086.24	17.786.46	-	-
R. I.	-	8	-	581.36	-	-	-	-	-	-	-
Conn.	195	295	-	4.235.57	25	46	14.345.75	7.683.50	21.795.39	-	-
N. Y.	-	5.910	1	172.049.02	-	1	-	90.00	90.00	39	25.413.05
Pa.	12	289	-	2.189.23	-	-	-	-	-	-	-
Totals	11.643	30.818	28	486.599.20	2.088	151	560.063.46	44.362.96	587.775.95	45	27.137.32

*Includes $2,000 Town Forest town commitments not granted during 1939.

Table 6 - Local Cooperation in Blister Rust Control Work in Northeastern States 1916-1939, Inclusive

Year	Individual Cooperation				Town Cooperation					County Cooperation	
	No. Cooperators				No. Town		Amount Town Money				
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.	Canker Elimination	Amount Spent By Individual Cooperators	Appropriations	Contributions	Appropriated	Contributed	Total Expended	No. County Allotments	Amount County Funds Expended
1918	-	19	-	4,188.63	43	-	7,200.00	-	5,029.11	-	-
1919	-	12	-	6,645.74	33	-	6,310.00	-	7,907.31	-	-
1920	-	152	-	8,498.78	51	-	8,575.00	-	7,992.09	-	-
1921	-	142	-	12,908.77	34	-	5,550.00	-	5,827.06	-	-
1922	-	971	-	28,035.13	58	-	20,598.29	-	18,448.62	-	-
1923	664	1,963	-	40,969.47	121	-	39,530.00	-	40,150.59	-	-
1924	1,714	4,050	-	44,622.07	151	-	48,429.25	-	43,898.50	-	-
1925	958	3,069	-	39,720.06	132	-	40,975.00	-	40,351.31	-	-
1926	741	3,283	-	44,254.88	123	-	40,425.00	-	41,223.95	-	-
1927	834	3,537	-	49,040.81	125	-	38,127.00	-	38,299.74	-	-
1928	991	3,390	-	54,667.68	143	-	41,117.00	-	39,038.73	-	-
1929	1,019	3,364	-	49,785.39	156	-	41,385.23	-	41,323.28	4	833.90
1930	971	2,419	-	32,999.65	186	-	48,143.50	-	46,880.12	3	1,112.10
1931	758	1,172	-	18,592.61	175	-	48,399.00	-	47,455.36	8	2,659.92
1932	313	1,488	14	19,509.18	81	-	19,217.09	-	19,575.96	6	1,252.86
1933	463	854	1	8,944.07	55	-	11,615.10	-	11,414.04	4	694.19
1934	1,331	774	-	8,687.68	13	-	4,574.00	-	4,573.93	5	881.75
1935	411	491	-	3,258.31	66	25	16,095.00	4,243.92	20,198.37	1	426.60
1936	20	301	-	1,306.20	84	31	17,150.00	14,128.67	22,023.68	2	937.00
1937	195	73	6	5,166.08	95	23	21,150.00	6,725.57	28,092.60	3	648.75
1938	85	122	3	4,852.43	82	17	18,975.00	9,720.01	27,827.77	5	9,876.04
1939	175	121	4	1,943.58	76	55	16,425.00	9,544.79	25,043.33	4	7,524.34
Totals	11,643	30,510	28	488,599.20	2,088	151	560,065.46	44,362.96	537,575.45	45	27,137.37

Results Accomplished in White Pine Blister Rust Control Under Regular Cooperative Program in the Northeastern States

Ribes Eradication

Experimental control work in New England and New York during the period 1918 to 1921, inclusive, resulted in 1,042,273 acres being cleared of 15,002,878 wild Ribes and 91,725 cultivated bushes at an average cost of 41 cents per acre. The cost per acre was reduced from 73 cents in 1918 to 24 cents in 1921. In the application of control measures under the Regular Cooperative Program since that time, an additional area of 8,418,449 acres in the Northeastern States was eradicated of 94,214,567 wild and 539,357 cultivated Ribes at a per acre cost of 23.2 cents. This acreage includes, however, 1,364,813 acres reworked since 1922 at a cost of 20.9 cents per acre. Therefore, under the Regular program up to 1939, inclusive, control of blister rust had been established on 8,095,909 acres (pine areas plus protection zones), and in connection with the maintenance of control 16.9%, or 1,364,813 acres had been reworked. This combined work resulted in the destruction of 109,217,445 wild and 631,082 cultivated bushes.

The results since 1922 were dependent upon the amount of local cooperation secured by the district leaders and funds provided by the cooperating states. State scouts were used to determine the location and abundance of Ribes chiefly in those townships where local cooperation had been obtained. In sections where the bushes were few, they were destroyed by the state scouts; those portions containing a general distribution or abundance of Ribes were definitely indicated as requiring crew work. The cost of such crew work was paid by the local cooperators and the state, the latter usually furnishing foremen to direct the activities of the laborers provided by the local cooperators. The standard eradication crew used on the Regular program consisted of five laborers and a foreman. However, in the case of individual cooperation, the owner frequently was unable to provide a full-size crew; consequently, many jobs were worked with crews of smaller size. In those townships where local cooperation had not been solicited or obtained, only a limited amount of control work was performed prior to the advent of the Emergency programs.

The low cost per acre under the Regular program may be attributed to the following facts. The best qualified men available, other than owners' labor, could be selected for foremen and crew members and usually these men were experienced in control work. These workers spent eight hours per day in the field and were usually accustomed to woods work. A considerable portion of the control area was worked by experienced scouts rather than crews as was necessary under the Emergency programs. Also, many of the Ribes concentrations were not worked until the advent of the Emergency activities.

The results accomplished in Ribes eradication work under the Regular program in each of the Northeastern States are shown in Tables 7 to 11. All states, except Massachusetts, Rhode Island, and New Jersey performed control work under the Regular program in 1939. As indicated in Table 7, a total of 1,309,409 wild Ribes and 929 cultivated bushes were destroyed on the 77,736 acres examined as a result of 8,622 man days of labor. The total cost of this work was $33,977.20, or 43.7 cents per acre. Of the total acreage worked, 51.9% was in New York, and 32.5% was in New Hampshire. The total acreage examined represents 11.1% of the total area worked in this Region during 1939.

No satisfactory comparison can be made between the results of the initial and re-eradication work (Table 7) as the same areas are not involved. However, it will be noted that based on totals for all states only 48 percent as many Ribes were found per acre on the re-eradication work, and the man days and cost per acre were 25% and 20%, respectively, less for the maintenance project.

Prior to 1934, no record was kept of man-days for the Ribes eradication work under the Regular program. In this report, the man-days data for the period 1918-1923 were compiled for each state by dividing the total cost of the Ribes eradication work by an arbitrary daily wage rate of $3.20.

Table 7 - Summary of Ribes Eradication Work Performed Under Regular Cooperative Program in Northeastern States During 1939

State	Type of Erad.	Acreage Total Worked	Acreage Pine Protected	Ribes Pulled Wild	Ribes Pulled Cult.	Total Man Days	Total Cost	Per Acre Cost	Per Acre Ribes	Per Acre Man Days
Maine	Initial	1,705	686	82,477	.29	509	$1,421.80	.834	48.4	.30
	Re-Erad.	5,940	1,739	37,304	50	636	1,957.49	.330	6.3	.11
	Total	7,645	2,425	119,781	79	1,147	3,379.29	.442	15.7	.15
N. H.	Initial	3,226	1,390	115,309	-	703	2,477.06	.768	35.7	.22
	Re-Erad.	22,017	15,475	325,216	27	2,643	9,111.29	.414	14.8	.12
	Total	25,243	16,865	440,525	27	3,346	11,588.35	.459	17.5	.13
Vt.	Initial	971	61	30,393	12	144	502.35	.517	31.3	.15
	Re-Erad.	610	46	5,698	-	62	217.51	.357	9.3	.10
	Total	1,581	107	36,091	12	206	719.86	.455	22.8	.13
Conn.	Initial	1,380	282	85	-	6	24.00	.017	0.06	.004
N. Y.	Initial	22,777	8,260	517,756	590	2,529	11,687.23	.513	22.7	.11
	Re-Erad.	17,575	7,042	129,413	221	991	5,060.14	.288	7.4	.06
	Total	40,352	15,302	647,169	811	3,520	16,747.37	.415	16.0	.09
Penna.	Initial	540	317	1,637	-	164	530.63	.983	3.0	.30
	Re-Erad.	995	384	64,121	-	233	987.70	.993	64.4	.23
	Total	1,535	701	65,758	-	397	1,518.33	.989	42.8	.26
Totals	Initial	30,599	10,996	747,657	631	4,055	16,643.07	.544	24.4	.13
	Re-Erad.	47,137	24,686	561,752	298	4,567	17,334.13	.368	11.9	.10
	Total	77,736	35,682	1,309,409	929	8,622	33,977.20	.437	16.8	.11

Basis of costs: Includes actual cost or value of owners' labor usually figured at 40 cents per hour, actual cost of other laborers, scouts and crew foremen while engaged in locating and pulling Ribes - cost of crew transportation - and miscellaneous expenses for trail paper, picks, etc.

Recapitulation of Total Cost of 1939 Ribes Eradication Work Under Regular Cooperative Program

State	Type of Erad.	Individuals	Towns	Counties	State	Forest Service	Total
Maine	Initial	-	947.87	-	473.93	-	1,421.80
	Re-Erad.	-	1,576.49	-	239.75	141.25	1,957.49
	Total	-	2,524.36	-	713.68	141.25	3,379.29
N. H.	Initial	-	1,965.36	-	511.70	-	2,477.06
	Re-Erad.	-	6,712.21	-	1,903.88	495.20	9,111.29
	Total	-	8,677.57	-	2,415.58	495.20	11,588.35
Vt.	Initial	498.35	-	-	4.00	-	502.35
	Re-Erad.	217.51	-	-	-	-	217.51
	Total	715.86	-	-	4.00	-	719.86
Conn.	Initial	-	-	-	24.00	-	24.00
N. Y.	Initial	605.85	-	5,729.06	5,352.32	-	11,687.23
	Re-Erad.	87.85	90.00	1,725.34	3,156.95	-	5,060.14
	Total	693.70	90.00	7,454.40	8,509.27	-	16,747.37
Penna.	Initial	8.80	-	-	521.83	-	530.63
	Re-Erad.	.20	-	-	987.50	-	987.70
	Total	9.00	-	-	1,509.33	-	1,518.33
Totals	Initial	1,113.00	2,913.23	5,729.06	6,887.78	-	16,643.07
	Re-Erad.	305.56	8,378.70	1,725.34	6,288.08	636.45	17,334.13
	Total	1,418.56	11,291.93	7,454.40	13,175.86	636.45	33,977.20

Table 8- Summary of Ribes Eradication Work Performed Under Regular Cooperative Program in Northeastern States During Period 1918-1939, Inclusive
(Excludes nursery sanitation and cultivated black currant elimination)

State	Type of Erad.	Total Acreage Worked	Ribes Pulled		Total Man Days	Total Cost	Per Acre		
			Wild	Cult.			Cost	Ribes	Man Days
Maine	Initial	1,755,803	20,365,931	118,853	76,941	$246,020.04	.140	11.6	.04
	Re-Erad.	92,569	1,222,978	2,055	9,383	29,500.09	.319	13.2	.10
	Total	1,848,372	21,588,909	120,908	86,324	275,520.13	.149	11.7	.05
N.H.	Initial	2,778,148	38,772,720	141,642	185,598	595,254.80	.214	14.0	.07
	Re-Erad.	487,724	3,539,600	3,792	28,754	94,334.10	.193	7.3	.06
	Total	3,265,872	42,312,320	145,434	214,352	689,588.90	.211	13.0	.07
Vt.	Initial	193,158	2,170,445	10,298	26,471	84,774.15	.439	11.2	.14
	Re-Erad.	33,629	184,784	845	3,524	11,378.07	.338	5.5	.10
	Total	226,787	2,355,229	11,143	29,995	96,152.22	.424	10.4	.13
Mass.	Initial	1,784,247	13,043,707	238,526	87,087	278,890.58	.156	7.3	.05
	Re-Erad.	477,074	896,060	9,414	14,862	50,045.32	.105	1.9	.03
	Total	2,261,321	13,939,767	247,940	101,949	328,935.90	.145	6.2	.05
R.I.	Initial	273,179	190,069	12,281	9,423	30,165.64	.110	0.7	.03
	Re-Erad.	16,885	10,406	75	646	2,072.71	.123	0.6	.04
	Total	290,064	200,475	12,356	10,074	32,238.35	.111	0.7	.04
Conn.	Initial	230,930	1,611,203	18,576	16,760	53,634.65	.232	7.0	.07
	Re-Erad.	36,161	448,596	3,706	6,939	22,654.93	.627	12.4	.19
	Total	267,091	2,059,799	22,282	23,699	76,289.58	.286	7.7	.09
N.Y.	Initial	1,012,323	21,050,724	61,144	235,058	766,821.59	.757	20.8	.23
	Re-Erad.	208,074	1,271,993	3,486	17,267	63,731.04	.306	6.1	.08
	Total	1,220,397	22,322,717	64,630	252,325	830,552.63	.681	18.3	.21
Penna.	Initial	68,121	3,859,908	6,364	11,472	37,124.70	.545	56.7	.17
	Re-Erad.	12,697	578,321	25	3,602	11,946.93	.941	45.5	.28
	Total	80,818	4,438,229	6,389	15,074	49,071.63	.607	54.9	.19
Totals	Initial	8,095,909	101,064,707	607,684	648,815	2,092,686.15	.260	12.5	.08
	Re-Erad.	1,364,813	8,152,738	23,398	84,977	285,663.19	.209	6.0	.06
	Total	9,460,722	109,217,445	631,082	733,792	2,378,349.34	.251	11.5	.08

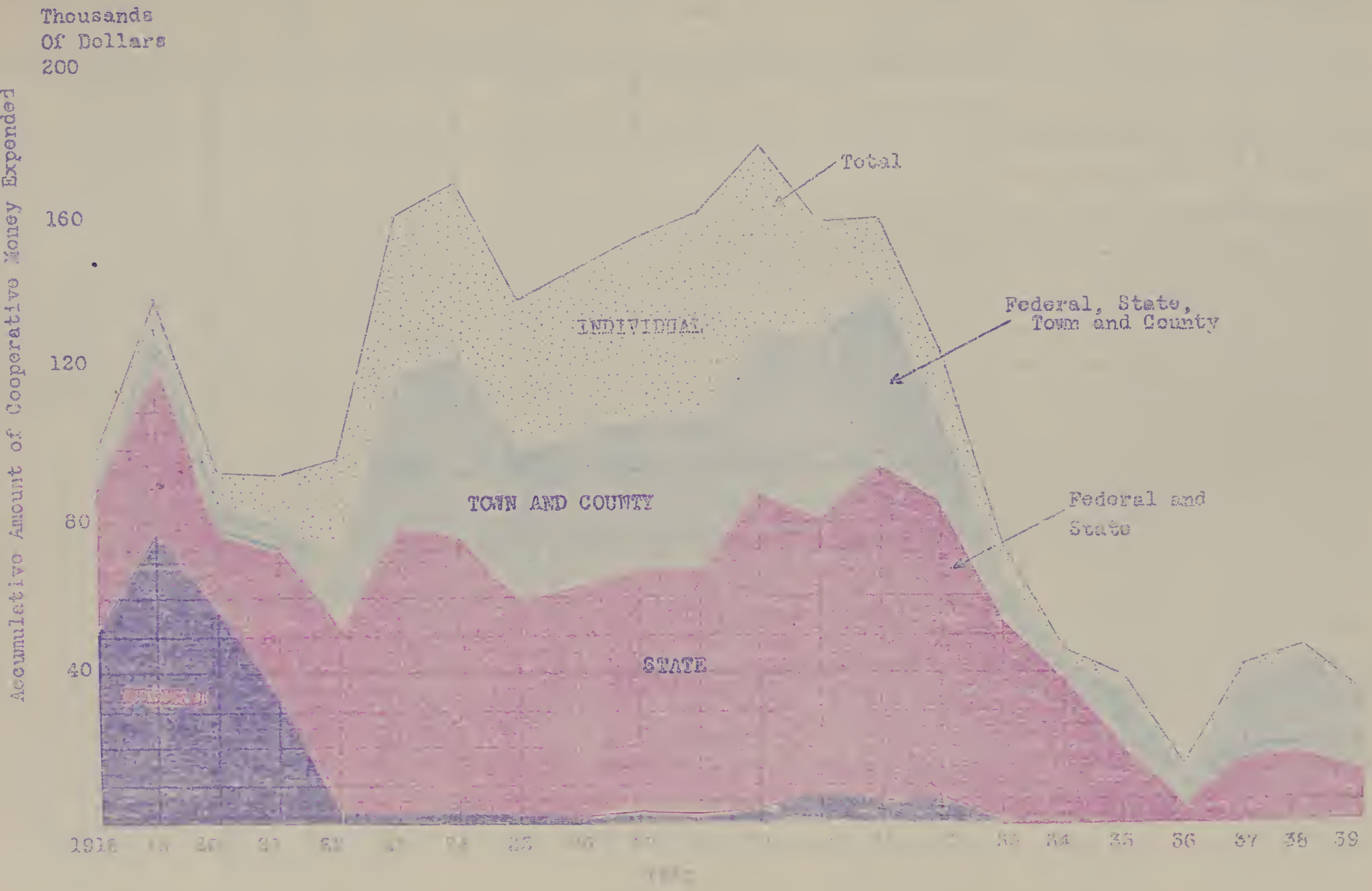
Basis of costs: See Page 20.

Note: Acreage of initial eradication in Maine adjusted by deducting 1,017,911 acres which represents eliminated area that was included in acreage figures reported for years 1921-1930, inclusive, when the control work was performed on the owner-labor and scouting basis. These areas were non-pine land outside the control area.

Table 9-. Recapitulation of Total Costs of Ribes Eradication Work Under Regular Cooperative Program in Northeastern States During Period 1918-1939, Inclusive.

State	Type of Erad.	Individuals	Towns	Counties	State	B.P.I.	B.E. and P.Q.	W.P.A.	Forest Service	Park Service	Total
Maine	Initial	79,876.20	89,633.37	-	29,865.32	38,283.15	-	16.47	-	8345.53	246,020.04
	Re-Erad.	2,578.92	19,488.35	-	6,382.59	887.42	-	21.56	141.25	-	29,500.09
	Total	82,455.12	109,121.72	-	36,247.91	39,170.57	-	38.03	141.25	8345.53	275,520.13
N. H.	Initial	41,288.87	341,877.41	-	151,156.27	59,460.63	-	-	1471.62	-	595,254.80
	Re-Erad.	6,343.36	66,628.03	-	20,867.51	-	-	-	495.20	-	94,334.10
	Total	47,632.23	408,505.44	-	172,025.78	59,460.63	-	-	1966.82	-	689,589.30
Vt.	Initial	62,582.60	841.26	-	15,293.82	6,056.47	-	-	-	-	84,774.15
	Re-Erad.	9,869.43	236.65	-	1,181.31	90.68	-	-	-	-	11,378.07
	Total	72,452.03	1077.91	-	16,475.13	6,147.15	-	-	-	-	96,152.22
Mass.	Initial	71,141.40	1699.22	-	183,974.90	22,125.06	-	-	-	-	278,890.58
	Re-Erad.	18,575.89	-	-	30,424.51	981.87	63.05	-	-	-	50,045.32
	Total	89,717.29	1699.22	-	214,349.41	23,106.93	63.05	-	-	-	328,935.90
R. I.	Initial	581.36	-	-	19,392.54	10,191.74	-	-	-	-	30,165.64
	Re-Erad.	-	-	-	1,671.67	401.04	-	-	-	-	2,072.71
	Total	581.36	-	-	21,064.21	10,592.78	-	-	-	-	32,238.00
Conn.	Initial	5790.52	8019.90	-	31,898.29	7,925.94	-	-	-	-	53,634.65
	Re-Erad.	1755.56	4167.99	-	15,065.88	1,665.50	-	-	-	-	22,654.93
	Total	7546.08	12,187.89	-	46,964.17	9,591.44	-	-	-	-	76,289.58
N. Y.	Initial	161,198.22	-	20,639.05	468,070.26	116,914.06	-	-	-	-	766,821.59
	Re-Erad.	10,222.38	90.00	4,438.24	48,980.42	-	-	-	-	-	63,731.04
	Total	171,420.60	90.00	25,077.29	517,050.68	116,914.06	-	-	-	-	830,552.63
Penna.	Initial	1,439.48	-	-	33,950.15	1,227.36	-	-	507.71	-	37,124.70
	Re-Erad.	18.80	-	-	11,580.58	75.49	-	-	272.06	-	11,946.93
	Total	1,458.28	-	-	45,530.73	1,302.85	-	-	779.77	-	49,071.63
Totals	Initial	423,898.65	442,071.16	20,639.05	933,551.55	262,184.41	-	16.47	1979.33	8345.53	2,092,606.25
	Re-Erad.	49,364.54	90,611.02	4,438.24	135,154.47	4,102.00	63.05	21.56	908.51	-	285,663.19
	Total	473,262.99	532,682.18	25,077.29	1,068,706.02	266,286.41	63.05	38.03	2887.84	8345.53	2,378,349.54

AMOUNT OF COOPERATIVE FUNDS EXPENDED EACH YEAR FOR RIBES ERADICATION WORK
ON REGULAR BLISTER RUST CONTROL PROGRAM IN NORTHEASTERN STATES
1918 to 1939, INCLUSIVE



Federal projects on Government lands - Regular Cooperative Program

Control measures under the regular Cooperative Program have been applied on the white pine areas of the National Forests and Parks in the Northeastern States where the pine is of sufficient value to justify the cost of protection. Up to 1933 such work was conducted as a regular federal project, the Bureau of Plant Industry cooperating with the National Park and Forest Services. With the exception of small projects on the Allegheny National Forest in 1933 and the White Mountain National Forest in Maine and New Hampshire during 1939, all control work on Government-owned lands in the Northeastern States since 1933 has been performed under the C.C.C. Program.

The project at Acadia National Park in Maine was begun in 1929 and has been continued each succeeding year except during 1938. All control work on this Park since 1933 has been performed by crews from the two local C.C.C. camps. The initial control project is practically completed and about one third of the area has been reworked.

With the exception of recent acquisitions all white pine areas on the White Mountain National Forest in New Hampshire have been given initial protection. The work was conducted as a regular federal project during the period 1924-1931, inclusive. Since 1933, C.C.C. personnel has been used, while during 1939 the C.C.C. work was supplemented by a small project financed by regular Forest Service funds. Such funds were also made available for similar re-eradication work on areas in Maine (see Table 10) which were initially protected several years ago in connection with regular control activities before the land was acquired by the Government.

Control work was begun on the Allegheny National Forest in Pennsylvania in 1929 when the Hearts Content tract was initially cleared of Ribes by the Forest Service in cooperation with the Bureau of Plant Industry. This area was re-examined for Ribes in 1931 and the more likely Ribes sites were again removed in 1933. Control measures were also applied in several other tracts on this Forest during the period 1933-1936, inclusive, all of the work since 1933 being performed by C.C.C. crews. No protection work has been done on this Forest since 1936. According to a survey made in 1935, there are areas totalling 1,586 acres still in need of initial protection.

Table 10 - Summary of Ribes Eradication Work on Federal Lands in Connection With Regular Cooperative Program During 1939

(Data included in preceding summaries of control work under Regular Cooperative Program)

Project	Type of Erad.	Total Acreage Worked	Ribes Pulled: Wild	Ribes Pulled: Cult.	Total Man Days	Cost: State	Cost: Forest Service	Cost: Total	Per Acre: Cost	Per Acre: Ribes	Per Acre: Man Days
White Mt. National Forest, Me.	Re-Erad.	85	3,754	-	47		141.25	141.25	1.66	44.2	.55
White Mt. National Forest, N.H.	"	5,094	10,803	-	169	133.50	495.20	628.70	.123	2.1	.03
Totals	"	5,179	14,557	-	216	133.50	636.45	769.95	.149	2.8	.04

Basis of Costs: Includes actual cost of laborers, crew bosses and foremen engaged in locating and pulling Ribes; cost of crew transportation, and miscellaneous expenses for small tools, etc.

Table 11 - Summary of Ribes Eradication Work on Federal Lands in Connection With Regular Cooperative Program, 1924-1939, Inclusive.
(Data included in preceding summaries of control work under Regular Cooperative Program)

Project	Type of Erad.	Total Acreage Worked	Ribes Pulled Wild	Ribes Pulled Cult.	Total Man Days	Cost B.P.I.	Cost State	Cost Forest Service	Cost Park Service	Cost Total	Per Acre Cost	Per Acre Ribes	Per Acre Man Days
Acadia National Park, Me.	All Initial	7,726	503,920	-	2,798	3,145.83	-	-	8,345.53	$11,491.36	$1.49	65.2	.36
White Mt. National Forest, No.	All Re-Erad.	85	3,754	-	47	-	-	141.25	-	141.25	1.66	44.2	.55
White Mt.	Initial	6,779	182,493	-	554	75.63	224.11	1,471.62	-	1,771.36	.261	26.9	.08
National	Re-Erad.	5,094	10,803	-	169	-	133.50	495.20	-	628.70	.123	2.1	.03
Forest, N.H.	Total	11,873	193,296	-	723	75.63	357.61	1,966.82	-	2,400.06	.202	16.3	.06
Sub-Totals For	Initial	6,779	182,493	-	554	75.63	224.11	1,471.62	-	1,771.36	.261	26.9	.08
White Mt. Na-	Re-Erad.	5,179	14,557	-	216	-	133.50	636.45	-	769.95	.149	2.8	.04
tional Forest	Total	11,958	197,050	-	770	75.63	357.61	2,108.07	-	2,541.31	.213	16.5	.06
Allegheny	Initial	891	129,019	8	194	136.56	-	507.71	-	644.27	.723	144.8	.22
National	Re-Erad.	627	19,993	-	106	71.29	-	272.06	-	343.35	.548	31.9	.17
Forest, Pa.	Total	1,518	149,012	8	300	207.85	-	779.77	-	987.62	.651	98.2	.20
Totals	Initial	15,396	815,432	8	3,546	3,358.02	224.11	1,979.33	8,345.53	13,906.99	.903	53.0	.23
	Re-Erad.	5,806	34,550	-	322	71.29	133.50	908.51	-	1,113.30	.192	5.9	.06
	Total	21,202	849,982	8	3,868	3,429.31	357.61	2,887.84	8,345.53	15,020.29	.708	40.1	.18

Basis of costs: See Page 20.

The control work performed on federal lands under the C.C.C. Program during the period 1933-1939, inclusive, is summarized in Table 27 , and the results of all work on such areas under the Regular and C.C.C. Programs are given in Table 95.

Nursery Sanitation - Regular Cooperative Program

White pines must be grown under absolutely sanitary conditions, as regards Ribes, in order to prevent infection from blister rust. Therefore, it is essential that the white pine stock in each nursery be protected by eradicating all Ribes within 1500 feet and all European black currants from within one mile. All of the Northeastern States, except Rhode Island, have state nurseries growing white pines. Control of the disease has been established and is being maintained in all 17 of these nurseries and 5 federal nurseries in this Region. Most of the commercial pine growing nurseries are located in Massachusetts, Connecticut, New York, New Jersey, and Pennsylvania. In the other Northeastern States there are only a few such nurseries producing white pines. Sanitation zones have been established around most of the important commercial nurseries in New England. Control work around the private nurseries in New York has been limited due to the relatively few white pines grown and the abundance of cultivated Ribes within the prescribed sanitation zones which would necessitate a large expenditure by the nurserymen for compensation if these bushes were removed. According to the present state blister rust law in New York, effective February 17, 1930, no compensation shall be paid by the state for any species of Ribes destroyed in connection with the establishment of Ribes-free zones around commercial nurseries, but fair compensation must be paid for such bushes by the person owning or operating the protected nursery. None of the commercial nurseries growing white pine in New Jersey has established sanitation zones. In Pennsylvania four commercial nurseries have taken such action. However, an effort is being made to extend protection to the most important of the commercial nurseries in that state. The status of nursery sanitation work in the various Northeastern States as of December 31, 1939, is indicated in Table

Since 1929, a separate record has been kept of the Ribes eradication work performed in the protection of white pine in the nurseries. Prior to 1930, the results of such activities were included in the regular Ribes eradication summaries.

During 1939, nursery sanitation work was performed under the Regular Cooperative Program in Massachusetts, Connecticut, and Pennsylvania, where the environs of 16 nurseries were re-examined for Ribes. The results of the 1939 sanitation work, by states, are shown in Table 12, while Tables 13 and 14 give the totals for the period 1930-1939, inclusive, by states and years, respectively. A marked decrease in the number of Ribes per acre is apparent in the re-eradication projects. In fact, during this period an average of only 1.4 bushes per acre was found.

Table 12 - Summary of Nursery Sanitation Work Under Regular Cooperative Program in Northeastern States During 1939
(All Re-Eradication Work)

State	No. Nurseries Worked	Acreage Worked	Ribes Pulled		Total Man Days	Total Cost (All paid by state)	Per Acre		
			Wild	Cult.			Cost	Ribes	Man Days
Mass.	5	289	8,019	-	44	$301.15	1.04	27.7	.15
Conn.	7	2,509	76	10	58	290.00	.116	0.03	.02
Penna.	4	2,210	10	-	3	9.20	.004	0.004	.001
Totals	16	5,008	8,105	10	105	$600.35	.120	1.6	.02

Basis of costs: Includes cost of laborers, scouts and foremen while engaged in locating and eradicating Ribes in nursery sanitation zones - cost of crew transportation.

Table 13 - Summary of Nursery Sanitation Work Under Regular Cooperative Program in Northeastern States, 1930-1939, Inclusive.

By States

State	Type of Erad.	Acreage Examined	Ribes Pulled		Total Man Days	Cost					Per Acre		
			Wild	Cult.		Indiv.	Towns	State	B.P.I.	Total	Cost	Ribes	Man Days
Maine	Initial	206	103,516	22	163	324.45	-	198.20	-	522.65	2.54	502.5	.79
	Re-Erad.	272	8,873	-	74	-	156.18	82.27	-	238.45	.877	32.6	.27
	Total	478	112,389	22	237	324.45	156.18	280.47	-	761.10	1.59	235.1	.50
N.H.	Initial	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	1,826	7,648	-	148	172.28	-	322.71	-	494.99	.271	4.2	.08
	Total	1,826	7,648	-	148	172.28	-	322.71	-	494.99	.271	4.2	.08
Vt.	Initial	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	1,150	3,082	-	160	-	-	516.01	-	516.01	.449	2.7	.14
	Total	1,150	3,082	-	160	-	-	516.01	-	516.01	.449	2.7	.14
Mass.	Initial	682	7,567	112	85	110.05	-	212.79	10.00	332.84	.488	11.1	.13
	Re-Erad.	5,828	16,668	179	708	89.20	-	2,982.84	-	3,072.04	.527	2.9	.12
	Total	6,510	24,235	291	793	199.25	-	3,195.63	10.00	3,404.88	.523	3.7	.12
R. I.	Initial	1,190	133	520	158	-	-	343.56	162.87	506.43	.426	0.1	.13
	Re-Erad.	4,563	4,622	165	110	-	-	749.62	-	749.62	.164	1.0	.02
	Total	5,753	4,755	685	268	-	-	1,093.18	162.87	1,256.05	.218	0.8	.05
Conn.	Initial	6,587	5,352	102	215	204.32	-	345.69	139.92	689.93	.105	0.8	.03
	Re-Erad.	40,669	6,065	874	1,250	557.04	-	3,557.64	610.87	4,725.55	.116	0.1	.03
	Total	47,256	11,417	976	1,465	761.36	-	3,903.33	750.79	5,415.48	.115	0.2	.03
N.Y.	Initial	3,110	26,017	634	382	5.60	-	1,219.95	-	1,225.55	.394	8.4	.12
	Re-Erad.	59,172	95,678	1,156	3,812	246.57	-	12,349.63	-	12,596.20	.213	1.6	.06
	Total	62,282	121,695	1,790	4,194	252.17	-	13,569.58	-	13,821.75	.222	2.0	.07
N.J.	Initial	600	462	49	7	-	-	22.20	-	22.20	.032	0.8	.01
	Re-Erad.	610	569	-	8	-	-	31.47	22.50	53.97	.088	0.9	.01
	Total	1,210	1,031	49	15	-	-	53.67	22.50	76.17	.063	0.9	.01
Penna.	Initial	4,115	35,920	491	261¼	235.30	-	588.43	36.80	860.53	.209	8.7	.06
	Re-Erad.	10,926	28,163	43	1,090	37.15	-	3,232.61	-	3,269.76	.299	2.6	.10
	Total	15,041	64,083	534	1,351¼	272.45	-	3,821.04	36.80	4,130.29	.275	4.3	.09
Totals	Initial	16,490	178,967	1,930	127½	879.72	-	2,930.32	349.59	4,160.13	.252	10.9	.08
	Re-Erad.	125,016	171,358	2,417	7,360	1,102.24	156.18	23,824.80	633.37	25,716.59	.206	1.4	.06
	Total	141,506	350,335	4,347	8,631½	1,981.96	156.18	26,755.62	982.96	29,876.72	.211	2.5	.06

Basis of costs: See Page 26.

Table 14. - Summary of Barberry eradication work (Farm Labor & Cooperative Projects) in Connecticut, 1930-1939, Inclusive.

By Years

Year	Type of Erad.	Acreage Examined	Ribes Pulled Wild	Ribes Pulled Cult.	Total Man Days	Cost Indiv.	Cost Towns	Cost State	Cost B.P.I.	Cost Total	Per Acre Cost	Per Acre Ribes
1930	Initial	4,973	110,704	182	147	525.77	-	905.19	-	1,433.96	.288	22.3
	Re-Erad.	20,752	59,542	643	1,490	568.89	-	4,198.33	-	4,767.22	.230	2.9
	Total	25,725	170,246	825	1,937	1,097.66	-	5,103.52	-	6,201.18	.244	6.6
1931	Initial	3,048	6,117	55	120	5.60	-	240.35	139.92	385.88	.127	2.0
	Re-Erad.	25,776	26,126	1,086	1,671	117.69	-	4,663.42	372.50	5,353.61	.208	1.0
	Total	29,824	32,243	1,141	1,791	123.29	-	5,103.78	512.42	5,739.49	.192	1.1
1932	Initial	4,759	16,478	1,222	555	50.65	-	1,586.32	172.87	1,811.84	.381	3.5
	Re-Erad.	12,903	12,543	60	1,257	155.51	7.73	3,828.15	5.33	3,996.72	.310	1.0
	Total	17,662	29,021	1,282	1,812	205.16	7.73	5,416.47	178.20	5,808.56	.329	1.6
1933	Initial	1,490	19,102	32	67	59.40	-	196.95	36.80	293.15	.197	12.8
	Re-Erad.	16,335	33,280	368	1,297	183.50	148.45	4,608.74	255.54	5,196.23	.283	1.8
	Total	19,825	52,382	400	1,364	242.90	148.45	4,805.69	292.34	5,489.38	.277	2.5
1934	Initial	1,632	24,958	94	45	186.80	-	-	-	186.80	.111	14.3
	Re-Erad.	7,161	7,465	-	247	-	-	907.00	-	907.00	.126	1.0
	Total	8,863	32,423	94	292	186.80	-	907.00	-	1,093.80	.123	3.7
1935	Initial	148	1,608	320	27	46.90	-	-	-	46.90	.317	10.9
	Re-Erad.	11,374	5,543	145	367	34.75	-	1,178.78	-	1,213.53	.107	0.5
	Total	11,522	7,156	465	394	81.65	-	1,178.78	-	1,260.43	.109	0.6
1936	Initial	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	3,688	6,194	30	346	-	-	1,288.62	-	1,288.62	.349	1.7
	Total	3,688	6,194	30	346	-	-	1,288.62	-	1,288.62	.349	1.7
1937	Initial	390	-	25	½	1.60	-	-	-	1.60	.004	-
	Re-Erad.	10,569	6,566	66	323	41.90	-	1,267.63	-	1,309.53	.124	0.6
	Total	10,959	6,566	91	323½	43.50	-	1,267.63	-	1,311.13	.120	0.6
1938	Initial	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	8,430	5,999	9	267	-	-	1,083.78	-	1,083.78	.129	0.7
	Total	8,430	5,999	9	267	-	-	1,083.78	-	1,083.78	.129	0.7
1939	Initial	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	5,008	8,105	10	105	-	-	600.35	-	600.35	.120	1.6
	Total	5,008	8,105	10	105	-	-	600.35	-	600.35	.120	1.6
Totals	Initial	16,490	178,967	1,930	1,271½	879.72	-	2,930.82	349.59	4,160.13	.252	10.9
	Re-Erad.	125,016	171,255	2,417	7,350	1,102.24	156.18	23,824.80	633.37	25,716.59	.206	1.4
	Total	141,506	350,335	4,347	8,631½	1,981.96	156.18	26,755.62	982.95	29,876.72	.211	2.5

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Ribes Nigrum Elimination - Regular Cooperative Program

The cooperating states are eliminating Ribes nigrum as rapidly as practicable under existing conditions. Such bushes are an important factor in the long distance spread and local establishment of the rust. The elimination of these Ribes has been conducted as a special project in four Northeastern States - Connecticut (1930-1935), Massachusetts (1930-1939), Rhode Island (1929-1933), and New York (1928-1936 - and 1939). The work has been completed in all of these states, except New York. In that state containing 996 townships, the project has been finished in 236 townships and partly completed in 39 others. All of the mentioned states, except Massachusetts, have laws which prohibit the possession of such bushes. In the other five Northeastern States, the cultivated black currants are destroyed in connection with the work of eradicating wild Ribes and other cultivated bushes. It may, however, be advisable to make special arrangements for eliminating Ribes nigrum outside the control areas. The section of the Northeast now most in need of black currant elimination comprises Pennsylvania, New Jersey, and the western half of New York where the pine areas are scattered. However, many factors need careful consideration before adopting a policy regarding the elimination of Ribes nigrum in these remaining areas. No black currant elimination work was performed during 1939 under the regular program.

Table 15 summarizes the results of the special black currant elimination work conducted under the Regular Cooperative Program during the period 1918-1939, inclusive.

Table 15 . Special Black Currant Elimination Work under the Regular Cooperative Program in Northeastern States, 1918-1939, Inclusive.

State	No. Properties Inspected	No. Patches Ribes Located	No. Ribes Pulled			Total Man Days	Cost				
			Nigrum	Other Cult.	Total		Indiv.	State	C.P.I.	[illegible]	Total
[illegible]ss.	193,305	4,491	32,115	-	32,115	5,552½	2351.50	20,576.44	101.00	-	[illegible]
I.	110,137	1,917	16,219	1,293	17,512	1,929	-	9,170.55	670.51	[illegible]	[illegible]
[illegible]m.	56,960	2,713	35[illegible]	18,696	19,0[illegible]	1,533	-	2,509.13	3[illegible].42	[illegible]	[illegible]
I.	522,400	5,102	36,930	761	37,69[illegible]	5,135¼	-	21,277.37	-	-	[illegible]
[illegible]ls	1,082,802	14,226	85,618	20,550	106,168	14,150	2351.50	53,533.49	1[illegible]2.92	[illegible]	[illegible]

Basis of costs: Includes cost of laborers, scouts, and foremen while engaged in locating and destroying Ribes nigrum and other cultivated bushes as indicated - owners' labor figured at rate of 40 cents per hour.

Blister Rust Canker Elimination Work - Regular Cooperative Program

Blister rust canker elimination work under this program has been restricted to the 1932 project at Acadia National Park in Maine, and a few instances where individual owners in Maine and Vermont paid the entire costs of such work on their properties during 1932, 1933, 1937, 1938, and 1939. Most of the canker elimination work in this Region has been performed on public lands in connection with the Emergency programs.

During 1939, four land owners in Maine and Vermont expended $190.84 for wages of laborers engaged in removing blister rust cankers from the white pines on their properties. These projects were supervised technically by the respective blister rust control leaders. Table 16 summarizes the results of the 1939 activities.

Table 16- Blister Rust Canker Elimination Work Conducted Under Regular Cooperative Program in Northeastern States During 1939.

State		Maine	Vermont	Totals
Number Individual Cooperators		1	3	4
Est. No. pines examined		63	6,202	6,265
No. fatally infected pines cut down		19	503	522
No. pines from which cankers removed		39	418	457
No. cankers removed	Branch	142	503	645
	Stem	13	129	142
Total man days		9	45	54
Total Cost (All by individuals)		$36.00	$154.83	$190.84

Basis of costs: - Includes wages of laborers and foremen, employed by the land owners, while engaged on canker elimination work.

Table 17- Blister Rust Canker Elimination Work Conducted Under Regular Cooperative Program in Northeastern States, 1932-1939, Inclusive.

State		Maine	Vermont	Totals
Est. no. pines examined		96,880	15,894	112,774
No. fatally infected pines cut down		8,205	1,332	9,537
No. pines from which cankers removed		12,559	1,536	14,095
No. cankers removed	Branch	18,874	2,692	21,566
	Stem	1,879	143	2,022
Total man days		727	137	864
Cost	Individuals	$2,084.54	$446.02	$2,530.66
	State	31.65	-	31.65
	National Park Service	321.04	-	321.04
	Total	$2,437.33	$446.02	$2,883.35

Basis of costs: - Includes wages of laborers and foremen (employed by land owners and National Park Service) while engaged on blister rust canker elimination work - cost of equipment purchased by National Park Service.

Table 17 includes the results of the 1932 work at Acadia National Park in Maine

when 2,546 pines were examined and 319 fatally infected trees cut down. In addition, 1,430 branch cankers and 61 stem infections were removed from 715 other infected pines. This 1932 project at Acadia National Park required 100 days labor and the total cost of the work was $321.04 to the National Park Service. C.C.C. laborers were used on similar activities at Acadia National Park during the period 1933-1939, inclusive - See Table 30 for the results of this C.C.C. work.

In addition to the canker elimination work reported in Table 17 , the ornamental pines on the state reservation at Saratoga, New York were examined by state employees for blister rust infection during 1933. The area contained 75 acres of plantations about 20 years old. There was also considerable natural white pine scattered over some 700 acres of woodlands. The pines had been previously pruned to a height of 6 feet which aided materially in inspecting them for infection. The work disclosed a total of 113 diseased trees, 49 of which had died from blister rust. These dead trees were cut down, and limb infections were also removed from 64 other pines. No time or cost figures are available for this work.

Pine and Control Area Mapping - Regular Cooperative Program

Pine and control area mapping is an essential part of blister rust control, especially in sections where the pine areas are scattered and where the Ribes eradication work is performed by crews composed of inexperienced men obtained from relief sources. Such maps assist the crew foremen in locating the boundaries of control areas, and consequently limit their activities to crew supervision.

During the period of experimental control work from 1918 to 1921, the white pine areas in Rhode Island, Connecticut and Vermont were roughly mapped, also a few sample townships were type mapped in Maine, New Hampshire and Massachusetts in order to develop methods and determine costs. The amount of mapping work was necessarily limited, as the field personnel was employed only during the Ribes eradication season. Funds were sufficient to employ only the state leaders on a yearly basis. Since 1922, a force of district leaders have also been employed full time. During the Ribes eradication season these men are engaged chiefly in supervising crew and scout activities and prior to the advent of the Emergency programs in 1933, their time during the fall, winter and early spring months was devoted mainly to informational and service activities to secure local cooperation in control activities during the following Ribes eradication season. Consequently, these leaders were unable to do much pine mapping. Also in large portions of Maine, New Hampshire, Massachusetts and New York the pine areas were so continuous that detailed pine mapping was not essential. Under such conditions, where town and state money was available, the eradication work was conducted on the basis of road block units irrespective of property lines. In New York, woodland maps were prepared for many of the counties chiefly by state men. Such maps showed, by symbols, the location of the white pine areas. In all instances, the boundaries of all control areas have been designated on maps, but the pine areas within the control areas have been mapped only during recent years when relief labor has been available for such work.

During the past few years, the unprotected pine areas have been smaller and more scattered. Consequently, there has been a greater need for detailed pine and control area maps. The Emergency programs since 1933 have been of great

assistance in providing men to do the necessary mapping. Similar activities on a small scale were conducted under the Regular Cooperative Program during the period 1933-1936, inclusive, but all of the 1937 and 1938 work was performed under the C.C.C. and W.P.A. Programs. During 1939, a few state employees were assigned to mapping work in 20 townships in New York. Table 18 summarizes this 1939 pre-eradication survey work in New York and the accomplishments under the Regular Cooperative Program since 1933.

Table 18 - Pine and Control Area Mapping Under The Regular Cooperative Program in Northeastern States During 1939 and Period 1933-1939, Inclusive.

State	Period	Acreage Mapped	Acreage Examined But Not Mapped	Total Man Days	Total Cost (All State)
Maine	1933 & 1935	21,976	36,055	104	$625.98
N. H.	1935	18,338	-	311	1,244.00
Conn.	1934	120	1,600	7	35.00
N.Y.	1939	140,842	89,340	394	1,905.72
	1934 - 1939	321,580	165,410	1384	6,657.72
Totals	1939	140,842	89,340	394	1,905.72
	1933 - 1939	362,014	203,065	1806	8,562.70

Table 19 - Total Expenditures, By Cooperating Agencies, Under The Regular Cooperative Program In Northeastern States During 1939.

State	State Funds	Towns	Individuals	Counties	B.E.&P.Q.	Forest Service	Total
Maine	3,722.75	2,524.36	36.00	-	8,512.54	141.25	14,936.90
N. H.	4,313.75	8,677.57	-	-	8,598.79	495.20	22,085.31
Vt.	1,263.90	-	870.70	-	5,943.05	-	8,077.65
Mass.	765.31	-	-	-	7,943.86	-	8,712.17
R. I.	2,559.99	-	-	-	499.98	-	3,059.97
Conn.	2,706.54	-	-	-	3,734.75	-	6,441.29
N. Y.	14,070.93	90.00	693.70	7,454.40	11,489.53	-	33,798.56
Penna.	5,644.84	-	9.00	-	6,660.52	-	12,314.36
Totals	35,051.01	11,291.93	1,609.40	7,454.40	53,383.02	636.45	109,426.21

Table 20 - Total Cooperative Expenditures, By Projects, Under Regular Cooperative Program In Northeastern States During 1939.

State	Supervision and BRC Agent Activities	Ribes Eradication	Eradication Assistants and Checkers	Nursery Sanitation	Ribes Compensation	Blister Rust Canker Elimination	Field Data		Total
							Mapping	General	
Maine	11,116.49	3,379.29	405.12	-	-	36.00	-	-	14,936.90
N. H.	10,496.96	11,588.35	-	-	-	-	-	-	22,085.31
Vt.	7,202.95	719.86	-	-	-	154.84	-	-	8,077.65
Mass.	8,411.02	-	-	301.15	-	-	-	-	8,712.17
R. I.	3,059.97	-	-	-	-	-	-	-	3,059.97
Conn.	6,127.29	24.00	-	290.00	-	-	-	-	6,441.29
N. Y.	11,489.53	16,747.37	1,696.82	-	14.55	-	1905.72	1944.57	33,798.56
Penna.	10,621.97	1,518.33	-	9.20	-	-	-	164.86	12,314.36
Totals	68,526.18	33,977.20	2,101.94	600.35	14.55	190.84	1905.72	2109.43	109,426.21

Table 21 - Total Expenditures, By Cooperating Agencies, Under Regular Cooperative Program In Northeastern States, 1918-1939, Inclusive.

State	State Funds	Towns	Individuals	Counties	P.W.A.	B.P.I.	B.E.&P.Q.	Forest Service	Park Service	WPA	Total
Maine	119,255.75	109,979.90	84,786.21	-	-	249,874.54	37,067.73	141.25	9639.44	33.03	610.7[illegible]
N. H.	291,141.58	409,353.38	47,804.51	-	-	434,415.50	35,585.28	2442.11	-	-	1,220.7[illegible]
Vt.	55,008.96	1,077.91	72,984.30	-	-	119,313.44	25,033.38	-	-	-	27[illegible]
Mass.	285,853.84	1,699.22	92,268.34	-	-	323,303.33	34,734.70	-	-	-	73[illegible]
R. I.	62,678.04	-	581.36	-	473.80	43,683.53	1,976.08	-	-	-	109,[illegible]
Conn.	128,574.05	12,187.89	8,383.69	-	912.25	101,725.56	17,527.95	-	-	-	269,[illegible]
N. Y.	996,923.04	90.00	171,714.37	25,077.29	-	479,769.34	39,603.56	-	-	-	1,713,177.[illegible]
N. J.	15,700.94	-	-	-	-	6,271.28	2,920.10	-	-	-	24,[illegible]
Penna.	105,929.56	-	1,881.73	-	-	31,619.21	26,823.99	779.77	-	-	167,[illegible]
Totals	2,062,065.76	534,388.30	480,404.51	25,077.29	1386.05	1,790,176.53	221,273.07	3363.13	9639.44	33.03	5,127,812.[illegible]

Table 22 - Total Cooperative Expenditures, By Projects, Under Regular Cooperative Program In Northeastern States, 1918-1939, Inclusive.

State	Supervision and BRC Agent Activities	Ribes Eradication	Eradication Assistants and Checkers	Black Currant Elimination	Nursery Sanitation	Ribes Compensation	Blister Rust Canker Elimination	Field Data		Total
								Mapping	General	
Maine	295,380.24	275,520.13	2,043.97	-	10,261.10	-	2,437.33	625.98	24,514.10	610.7[illegible]
N. H.	450,266.53	689,588.90	32,188.46	-	494.99	550.60	-	1,244.00	46,408.88	1,220.7[illegible]
Vt.	149,557.26	96,152.22	-	-	516.01	792.91	446.02	-	25,953.57	273,417.[illegible]
Mass.	319,612.89	328,935.90	-	23,028.24	3,919.73	14,547.10	-	-	48,816.12	738,859.[illegible]
R. I.	55,018.35	32,238.35	1,000.00	10,327.83	1,256.05	509.79	-	-	9,242.69	109,593.[illegible]
Conn.	134,294.15	76,289.58	475.06	7,069.01	5,415.43	103.50	-	35.00	45,629.62	269,311.[illegible]
N. Y.	453,748.10	830,552.63	91,041.08	27,277.37	13,821.75	5,587.99	-	6,657.72	284,491.26	1,713,177.[illegible]
N. J.	20,032.71	-	-	-	300.53	-	-	-	4,559.08	24,892.[illegible]
Penna.	98,637.76	49,071.63	2,454.07	-	4,130.29	153.00	-	-	12,587.51	167,034.[illegible]
Totals	1,976,547.99	2,378,349.34	129,202.64	67,702.50	40,115.93	22,244.89	2,883.35	8,562.70	502,202.83	5,127,812.[illegible]

BLISTER RUST CONTROL ACTIVITIES UNDER THE C.C.C. CONTROL PROGRAM IN THE NORTHEASTERN STATES

The C.C.C. Program in the Northeastern States during the period 1933 to 1939, inclusive, has provided an excellent opportunity for extending the application of blister rust control measures to unprotected white pine areas of commercial and scenic importance. Prior control work on many of these areas had been prevented either by lack of cooperation or because the cost of eradicating the existing Ribes was excessive under ordinary conditions. The control project was especially adapted to the C.C.C. Program, since the Ribes eradication work required chiefly manual labor and only a small expenditure for equipment. The C.C.C. Program was the first of the various Emergency programs to furnish labor for employment on our project. The states welcomed this work at the beginning of the program not only for the contemplated protection results, but because it offered a means of giving immediate and effective employment, under regular trained supervision, to hundreds of C.C.C. men during the organization period when other projects for various reasons could not be put into action. During these first few weeks, blister rust control gave many of the enlisted men their first opportunity to become acquainted with the woods, to learn discipline, and to obtain an appreciation of a day's work. At the winter meeting of New England Section of the Society of American Foresters in 1934 Mr. Tillotson, in charge of the C.C.C. Program in the Northeastern States, publicly remarked that he wished to commend the blister rust control organization for the way it handled its project in connection with the C.C.C. Program. He mentioned that this control organization, being in effective operation at the start of the C.C.C. work, accomplished excellent results without delay or confusion.

The C.C.C. Program has provided not only an opportunity for the employment of a large force of workers on Ribes eradication, but also permitted many men to be used on such control projects as pine and control area mapping, nursery sanitation, and blister rust canker elimination.

Allotment of Labor

No direct allotment of C.C.C. funds has been made for blister rust control projects in the Northeastern States. Prior to the start of control activities each year, the respective state blister rust control leaders and the C.C.C. officials have developed plans providing a definite number of man days of C.C.C. labor from certain camps for control activities. The regional leader has cooperated with the National Park and U.S. Forest officials in preparing similar plans for the C.C.C. projects at Acadia National Park in Maine, the White Mountain National Forest in New Hampshire and the Allegheny National Forest in Pennsylvania.

Responsibilities and Direction of Work

The field activities of the crews assigned to blister rust control work have been directed by C.C.C. technical foremen and checkers. In a few instances, experienced state paid foremen have been assigned to assist in directing the C.C.C. crews. The combined force was given technical supervision by the regular permanent state and district blister rust control leaders, except on federal lands where such technical supervision was supplied by the regional blister rust control office personnel. These leaders selected the areas to be protected, assisted in training the field men in proper methods of control, and checked the work to make sure desired results were accomplished. The only exception to the above occurred in Pennsylvania. The district leaders in that state did not supervise any C.C.C. work. Necessary supervision was provided by one or two state employees assisted by 4 to 17 C.C.C. checkers. The work of all these supervisory men was directed by the state leader.

During June to September 1933, three of the district blister rust control leaders in Maine and two in New York functioned as superintendents of C.C.C. camps devoted entirely to Ribes eradication work. None of the district leaders acted as camp superintendents after 1933. Due to various other emergency projects, since September, 1933, the blister rust control leaders have devoted less than one fourth of their time to C.C.C. activities. In most instances, the technical foremen and checkers provided for the C.C.C. program in 1933 consisted of well qualified and experienced men recommended by the blister rust control supervisory force. Few personnel changes were made in the C.C.C. supervisory force prior to 1935. However, during the past five years, many changes occurred; and when new camps were established, politics frequently entered into the selection of such men. In spite of this condition, the results were generally satisfactory, due in a large part to the effective efforts of the district leaders.

Selection of Areas To Be Protected

The areas selected for control work by the C.C.C. personnel were in most cases within a radius of 20 miles of the respective camps, preference being given to areas requiring initial protection. Control work in Massachusetts was limited to publicly-owned lands. It was also restricted to such lands in New York during 1933, and in Pennsylvania from 1933-1935, inclusive. With these exceptions, Ribes eradication work under the C.C.C. Program in the Northeastern Region has been performed on both public and private lands, about 90% of the total area covered being in private ownership.

Distribution of Work and Personnel Employed

The distribution of the C.C.C. control activities and the personnel assigned to such projects in the Northeastern States during each year since the Program was inaugurated in 1933 are shown in Table 23. There was a gradual increase in the number of camps performing Ribes eradication work each succeeding year up to 1936 with corresponding increases in the number of towns where control work was performed. The C.C.C. personnel also increased each year up to 1935, but a slight decrease occurred in 1936. Since 1936, there has been a steady decrease in the volume of C.C.C. control work. Such decreases were due chiefly to the closing of many of the camps and to the fact that no control work was needed within working distance of several other camps.

During 1939, Ribes eradication work was performed by personnel from only nine C.C.C. camps in New England as compared with 29 camps the preceding year. This drastic reduction was due to the fact that since the hurricane of September, 1938 the majority of the C.C.C. camps in the affected region have been concentrating on timber salvage and forest fire hazard reduction projects. The urgency of these activities made it necessary to curtail other forestry work, including blister rust control. C.C.C. employees were assigned to Ribes eradication work from 22 camps in New York and 31 camps in Pennsylvania during 1939 which was a decrease of only one camp (Pennsylvania) as compared with the previous year. The average number of enlisted men used on C.C.C. control work in 1939 was 1575 or less than half the number assigned to such activities during the peak year of 1935.

Table 23 - Distribution of Work and Personnel Employed on C.C.C. Ribes Eradication Projects in Northeastern States, 1933-1939 Inclusive

A - Number of C.C.C. Camps Where Control Work Performed

Year		1933	1934	1935	1936	1937	1938	1939
Maine	State	4	4	4	4	3	3	2
	Acadia Park	2	2	2	2	1	-	1
	Total	6	6	6	6	4	3	3
N.H.	State	5	5	6	8	6	-	-
	W. Mt. N. F.	4	3	2	-	-	1	1
	Total	9	8	8	8	6	1	1
Vt.		7	6	3	5	6	5	-
Mass.		12	9	10	10	3	11	2
R.I.		3	2	6	4	4	2	-
Conn.		7	8	10	7	8	7	3
N. Y.		8	29	23	38	27	22	22
N. J.		-	1	-	-	-	-	-
Pa.	State	62	54	69	59	48	32	31
	Allegheny N.F.	-	2	3	3	-	-	-
	Total	62	56	72	62	49	32	31
All States	State	108	118	131	135	106	82	60
	Nat. Park	2	2	2	2	1	-	1
	Nat. Forests	4	5	5	3	-	1	1
	Total	114	125	138	140	107	83	62

B - Number of Towns Where Control Work Performed

Year		1933	1934	1935	1936	1937	1938	1939
Maine	State	7	11	10	13	9	5	2
	Acadia Park	6	5	2	2	1	-	3
	Total	13	16	12	15	10	5	5
N.H.	State	23	16	27	18	10	-	-
	W. Mt. N.F.	10	3	4	-	-	2	2
	Total	33	19	31	18	10	2	2
Vt.		17	14	4	6	9	9	-
Mass.		17	15	25	14	4	24	8
R.I.		3	2	8	6	5	2	-
Conn.		19	15	40	10	12	22	4
N.Y.		19	75	64	125	58	60	53
N.J.		-	1	-	-	-	-	-
Pa.	State	62	59	109	140	91	78	83
	Allegheny N.F.	-	2	4	3	-	-	-
	Total	62	61	113	143	91	78	83
All States	State	167	208	287	332	198	200	150
	Nat. Park	6	5	2	2	1	-	3
	Nat. Forests	10	5	8	3	-	2	2
	Total	183	218	297	337	199	202	155

C - Average Number of Enlisted Men Employed

Year		1933	1934	1935	1936	1937	1938	1939
Maine	State	310	239	452	384	123	211	108
	Acadia Park	79	53	57	36	29	-	12
	Total	389	292	509	420	152	211	120
N. H.	State	342	130	154	151	69	-	-
	W. Mt. N. F.	55	44	47	-	-	10	29
	Total	397	174	201	151	69	10	29
Vt.		187	147	97	84	101	109	-
Mass.		99	112	141	134	23	114	24
R. I.		28	62	237	92	84	48	-
Conn.		144	161	182	115	106	135	47
N. Y.		441	1023	823	1280	902	562	558
N. J.		-	5	-	-	-	-	-
Pa.	State	347	784	1142	878	987	624	797
	Allegheny N.F.	-	26	41	47	-	-	-
	Total	347	810	1183	925	987	624	797
All States	State	1698	2663	3228	3118	2401	1803	1534
	Nat. Park	79	53	57	36	29	-	12
	Nat. Forests	55	70	88	47	-	10	29
	Total	2032	2786	3373	3201	2430	1813	1575

D - Number of Technical Foremen and Checkers

Year		1933	1934	1935	1936	1937	1938	1939
Maine	State	38	31	40	27	18	13	10
	Acadia Park	9	4	4	2	1	-	1
	Total	47	35	44	29	19	13	11
N. H.	State	34	17	13	13	9	-	-
	W. Mt. N. F.	8	3	3	-	-	1	-
	Total	42	20	16	13	9	1	-
Vt.		15	9	4	4	8	6	-
Mass.		8	9	11	8	2	4	2
R. I.		4	5	12	4	5	2	-
Conn.		12	13	15	9	9	7	4
N. Y.		67	121	71	94	73	43	43
N. J.		-	-	-	-	-	-	-
Pa.	State	45	73	89	80	62	31	41
	Allegheny N. F.	-	2	3	1	-	-	-
	Total	45	75	92	81	62	31	41
All States	State	223	278	255	239	186	106	100
	Nat. Park	9	4	4	2	1	-	1
	Nat. Forests	8	5	6	1	-	1	-
	Total	240	287	265	242	187	107	101

Basis For Personnel Costs and Hours of Work

It is impossible to give accurate cost figures for the enlisted personnel under the C.C.C. Program. In compiling such cost data for this report, the wages of the enlisted men were figured at the rate of $1.00 per day plus an arbitrary charge for subsistence. Such expenses were computed at the rate of 35 cents per man day in 1933, 40 cents in 1934, and 50 cents for the period 1935 to 1939, inclusive. Accurate data were available for the wages and expenses of the technical foremen and checkers, and any state foreman assigned to the C.C.C. work. The former have been paid monthly salaries ranging from $100. to $167.50 per month, the majority of them receiving from $130.00 to $140.00.

In computing the cost of the C.C.C. enlisted mens' time, their total time (8 hours per day) was charged during the period 1933-1938, inclusive. This includes time spent traveling to and from work and the lunch hour. During the early months of the program, lack of transportation and the practice of requiring crews to report back to camp for the noon meal materially reduced the actual working time of the men and caused a physical reaction to the personnel that was not favorable to productive results. These difficulties were over-come when the camps were supplied with adequate transportation facilities and a regulation was issued in 1934 requiring each enlisted man to perform 30 hours actual field work per week. In 1939, only the actual working time of the C.C.C. enlisted personnel was charged, and the man days data obtained by dividing the total working time by 8. This procedure appears to be a much fairer basis in comparing man day accomplishments of the C.C.C. work with that performed under the other programs.

Transportation

In most instances, adequate transportation facilities have been available for the C.C.C. work, except during the first few months of the program. Trained drivers have been assigned to each truck, and safety regulations enforced. In this report, where actual transportation costs were not available for the C.C.C. projects, such costs were estimated either on the basis of $40.00 per month for each truck plus 3 cents per mile for operating costs or at the rate of 12 cents per mile for each mile the truck was used on the project.

Accomplishments in Various Blister Rust Control Projects Under C.C.C. Program in Northeastern States

Ribes Eradication Work During 1939

C.C.C. personnel was used on Ribes eradication work during 1939 in all of the Northeastern States, except Vermont, Rhode Island, New Jersey, and from the state C.C.C. camps in New Hampshire. An average of 1575 enlisted men from 62 C.C.C. camps were assigned to control projects conducted in 155 townships. Such activities were conducted chiefly during the period May 1 - September 30, except in New Hampshire where work was performed under this program only during the period June 6 to August 1.

A total of 155,692 acres was cleared of 2,971,602 wild Ribes and 2,638 cultivated bushes as a result of 71,627 man days labor by the C.C.C. crews during 1939. Of this total, 60,192 acres was initial control work. The total acreage examined for Ribes under the C.C.C. Program represents 22.2% of all the 1939 control work in this Region.

As previously mentioned, it is impossible to give accurate cost figures for the work under the C.C.C. Program, except for the technical foreman and checkers and any crew foremen furnished by the states. The estimated cost of the 1939 C.C.C. Ribes eradication work, exclusive of supervision, amounted to $154,935.72, or $.995 per acre. The basis used in computing the C.C.C. costs is shown under Table 24. The per acre values as indicated in Tables 24 to 26 and in the graphs on pages 45 and 46 show that the cost of the 1939 C.C.C. work as well as for previous years were considerably higher than the average cost of eradicating Ribes in connection with the regular work. This can be attributed in part to the following causes:

(1) The district blister rust control leaders' activities in connection with the C.C.C. Program have been limited to technical supervision. They instructed the C.C.C. personnel as to where and how to do the necessary control work and performed sufficient administrative checking to make sure the desired results were obtained. However, lack of full authority over the field men was a severe handicap in many instances. The amount and quality of the supervision provided by the C.C.C. technical foreman was also inadequate in some cases.

(2) The sites selected for the C.C.C. work usually represented difficulty factors above average. The number of Ribes eradicated per acre on the C.C.C. work has averaged about three times as many as on the work performed during previous years under the Regular Cooperative Program.

(3) Practically all of the total acreage has been worked by crews in strip formation. In many instances, the areas undoubtedly could have been worked by the scout method and the per acre costs materially reduced, but experienced men were not available. The enlisted personnel consisted chiefly of men from the cities with little or no experience in manual labor or woods work. The necessity of emphasizing the fundamentals of Ribes eradication work to a changing and inexperienced personnel frequently prevented refinements in crew methods to eliminate lost motion and to increase crew flexibility under varying field conditions.

(4) The total time of the C.C.C. enlisted men (eight hours per man day) was charged during the period 1933-1935 inclusive in computing the cost of the eradication work. This included time consumed in traveling to and from work and the lunch hour. Consequently, only about six hours of actual field work was

performed per day on the C.C.C. projects as compared with eight hours for similar work under the Regular Cooperative and other emergency programs. This difference of 25% in productive time should be considered in comparing the costs of the C.C.C. work with that of similar activities conducted under other programs.

A comparison of the per acre values for the 1939 Ribes eradication work under the C.C.C. Program in the different states, as indicated by Table 24 shows considerable variation. The average number of man days required per acre is, of course, dependent on many factors, such as: number, size and distribution of the Ribes; density of undergrowth; topography; and the experience, ability and efficiency of the personnel. The relatively low per acre man day figures for Massachusetts and Connecticut are due primarily to the size of the bushes and the topography encountered in these two states; whereas in Pennsylvania and New York, numerous large bushes are found in many of the control areas, some of which comprise small scattered pine lots in remote, wooded, hilly areas. The 1939 C.C.C. work in Maine was restricted chiefly to areas with heavy Ribes concentrations as indicated by the per acre values in Table 24.

No satisfactory comparison can be made between the per acre values for the 1939 initial and re-eradication work (see Table 24) because the same areas are not involved. For instance, only 4.9 Ribes per acre were destroyed on the areas initially worked in New Hampshire while 163.7 bushes per acre were found on the re-eradication work in that state. The latter work was performed on the Bartlett experimental tract on the White Mountain National Forest, where the Ribes regrowth was principally skunk currant concentrations.

Ribes Eradication Work - 1933 to 1939, Inclusive

Tables 25 and 26 summarize the results of the C.C.C. Ribes eradication work by states, years, and classes of work during the period 1933-1939, inclusive. The total acreage cleared of Ribes (2,366,340) under the C.C.C. Program represents 36.8% of all the control work performed in the Northeastern States during this period. It will be noted in Table 26 and the graph on Page 46 that the average man days per acre for all C.C.C. work decreased slightly each year from 1933-1936, inclusive, but increased during 1937. There was a slight decrease in 1938, and the average for 1939 was the same as during the previous year in spite of the fact that only the actual time the enlisted men spent on Ribes eradication work was charged during 1939. With the exception of 1934, decreases also occurred each year in the average number of Ribes per acre up to 1939 when there was a slight increase. The average cost per acre decreased in 1934 and 1935 in spite of the increased charge for subsistence expenses. The increase in the average cost per acre for all states during 1939 is due to the fact that over 78% of the work was in New York and Pennsylvania where the costs are normally higher than some of the other Northeastern States where the C.C.C. control activities were curtailed during the current year.

Numerous inspections of the C.C.C. work show that, on the whole, the quality of the Ribes eradication work in the Region was satisfactory. The supervisory officials acquitted themselves commendably in all respects, and the enlisted men in most cases gave the job their best efforts during the time they spent in the field. The project has not only resulted in the protection of hundreds of thousands of acres of valuable pine, but has helped to rehabilitate thousands of young men, many of whom were greatly in need of assistance.

Table 24 - Ribes Eradication Work Performed Under C.C.C. Program in Northeastern States During 1939

(Excludes nursery eradication and cultivated black currant elimination)

State	Type of Erad.	Acreage: Total Worked	Acreage: Pine Protected	Ribes Pulled: Wild	Ribes Pulled: Cult.	Total Man Days	Total Cost (All C.C.C.)	Per Acre: Cost	Per Acre: Ribes	Per Acre: Man Days
Maine	Initial	9,756	2,500	639,667	191	3,953	$8,786.72	.939	63.4	.42
	Re-Erad.	3,402	1,465	153,240	-	1,936	4,191.22	1.23	45.3	.57
	Total	12,758	3,965	793,907	191	5,889	12,977.94	1.02	62.2	.46
N. H.	Initial	56	45	273	-	6	11.85	.212	4.9	.11
	Re-Erad.	206	155	37,851	-	155	326.40	1.58	183.7	.75
	Total	262	200	38,124	-	161	338.25	1.29	145.5	.61
Mass.	Initial	5,691	1,432	74,729	-	1,486	3,201.90	.563	13.1	.26
	Re-Erad.	2,158	719	72,735	-	643	1,357.26	.629	33.7	.30
	Total	7,349	2,151	147,464	-	2,129	4,559.16	.581	18.8	.27
Conn.	Initial	-	-	-	-	-	-	-	-	-
	Re-Erad.	12,861	2,114	277,268	-	3,323	7,106.74	.553	21.5	.26
	Total	12,861	2,114	277,268	-	3,323	7,106.74	.553	21.6	.26
N. Y.	Initial	13,429	5,500	380,061	847	8,365	17,925.54	1.33	28.3	.62
	Re-Erad.	45,400	14,536	444,124	336	18,770	40,226.91	.886	9.8	.41
	Total	58,829	20,036	824,185	1,183	27,135	58,152.45	.988	14.0	.46
Penna.	Initial	31,660	8,094	522,934	955	16,214	35,287.06	1.11	16.5	.51
	Re-Erad.	31,473	6,161	367,720	309	16,776	36,514.12	1.16	11.7	.53
	Total	63,133	14,255	890,654	1,264	32,990	71,801.18	1.14	14.1	.52
Totals	Initial	60,192	17,571	1,617,664	1,993	30,024	65,213.07	1.08	26.9	.50
	Re-Erad.	95,500	25,150	1,353,938	645	41,603	89,722.65	.939	14.2	.44
	Total	155,692	42,721	2,971,602	2,633	71,627	154,935.72	.995	19.1	.46

Basis of costs: Includes wages of enlisted men figured at $1.00 per eight hour man day plus arbitrary charge of 50 cents per day for subsistence - cost of crew transportation figured on basis of $40. per month for each truck plus 3 cents per mile for operating costs or at rate of 12 cents per mile for each mile the truck was used on the project - and miscellaneous expenses for trail paper, picks, etc. Only actual working time of enlisted men included - man days data obtained by dividing actual working time by eight.

Table 25 - Ribes Eradication Work Performed Under C.C.C. Program in Northeastern States During Period 1933-1939, Inclusive

(Includes nursery sanitation and cultivated Ribes Nigrum elimination)

By States

State	Type of Erad.	Acreage Covered	Ribes Pulled		Total Man Days	Cost			Per Acre		
			Wild	Cult.		State	C.C.C.	Total	Cost	Ribes	Man Days
Maine	Initial	212,772	8,961,166	8,170	91,702	-	145,034.16	145,034.16	.696	42.1	.43
	Re-Erad.	204,814	3,053,669	2,853	50,774	135.00	84,629.06	84,764.06	.414	14.9	.25
	Total	417,586	12,014,835	10,993	142,186	135.00	232,663.22	232,798.22	.557	28.8	.34
N. H.	Initial	82,219	5,928,544	455	47,270	61.80	74,596.09	74,677.89	.908	72.4	.57
	Re-Erad.	39,891	1,612,453	-	15,661	62.20	25,169.01	25,231.21	.632	40.4	.39
	Total	122,110	7,541,001	458	62,931	124.00	99,765.10	99,909.10	.818	61.6	.52
Vt.	Initial	54,075	2,685,520	786	26,178	-	42,632.07	42,632.07	.788	49.7	.48
	Re-Erad.	31,987	677,758	106	14,974	-	23,944.13	23,944.13	.749	21.2	.47
	Total	86,062	3,363,278	891	41,152	-	66,576.20	66,576.20	.774	39.1	.48
Mass.	Initial	46,905	1,194,495	2,686	19,348	-	30,758.34	30,758.34	.656	25.5	.41
	Re-Erad.	30,586	425,066	690	12,814	-	20,670.93	20,670.93	.676	13.9	.42
	Total	77,491	1,619,561	3,376	32,162	-	51,429.27	51,429.27	.664	20.9	.42
R. I.	Initial	40,448	14,678	617	8,876	-	14,188.52	14,188.52	.351	1.1	.22
	Re-Erad.	196,879	202,723	6,149	37,598	15.00	59,581.41	59,596.41	.303	1.0	.19
	Total	237,327	247,401	6,766	46,474	15.00	73,769.93	73,784.93	.311	1.0	.20
Conn.	Initial	100,707	448,068	4,830	13,007	-	22,369.50	22,369.50	.222	4.4	.13
	Re-Erad	189,790	2,378,572	3,464	54,134	-	91,713.39	91,713.39	.483	12.5	.28
	Total	290,497	2,826,640	8,294	67,141	-	114,082.89	114,082.89	.393	9.7	.23
N. Y.	Initial	545,800	16,975,175	29,930	245,288	22,221.90	402,617.85	424,839.75	.778	31.1	.45
	Re-Erad.	215,446	3,807,568	1,495	99,258	5,840.63	167,969.91	173,810.54	.807	17.7	.46
	Total	761,246	20,782,743	31,425	344,546	28,062.53	570,587.76	598,650.29	.786	27.3	.45
N. J.	Initial	381	19,795	304	247	-	346.50	346.50	.909	52.0	.65
	Re-Erad.	-	-	-	-	-	-	-	-	-	-
	Total	381	19,795	304	247	-	346.50	346.50	.909	52.0	.65
Penna.	Initial	223,061	11,849,219	22,116	194,686	-	318,724.51	318,724.51	1.43	53.1	.87
	Re-Erad.	150,559	3,256,573	2,182	122,505	360.00	199,945.58	200,305.58	1.33	21.6	.81
	Total	373,640	15,106,092	24,898	317,191	360.00	518,670.09	519,030.09	1.39	40.4	.85
Totals	Initial	1,306,388	48,106,664	70,436	649,312	22,303.70	1,054,267.54	1,076,571.24	.824	36.8	.50
	Re-Erad.	1,059,952	15,414,682	16,959	407,718	6,412.83	673,623.42	680,036.25	.642	14.5	.38
	Total	2,366,340	63,521,346	87,405	1,057,030	28,716.53	1,727,890.96	1,756,607.49	.742	26.9	.45

Basis of costs: Includes wages of enlisted men figured at $1.00 per eight hour man day plus arbitrary charge of 35 cents per man day for subsistence in 1933, 40 cents in 1934, and 50 cents from 1935-1939, inclusive-cost of crew transportation figured on basis of $40. per month for each truck plus 3 cents per mile for operating costs at 25 cents per mile for each mile the truck was used on the project - and supplies and expenses for tools, camps, etc. Total [illegible] of enlisted personnel [illegible] hours per day [illegible] [illegible] [illegible] [illegible]

Table 26 - Ribes Eradication Work Performed Under C.C.C. Program in Northeastern States During Period 1933-1939, Inclusive

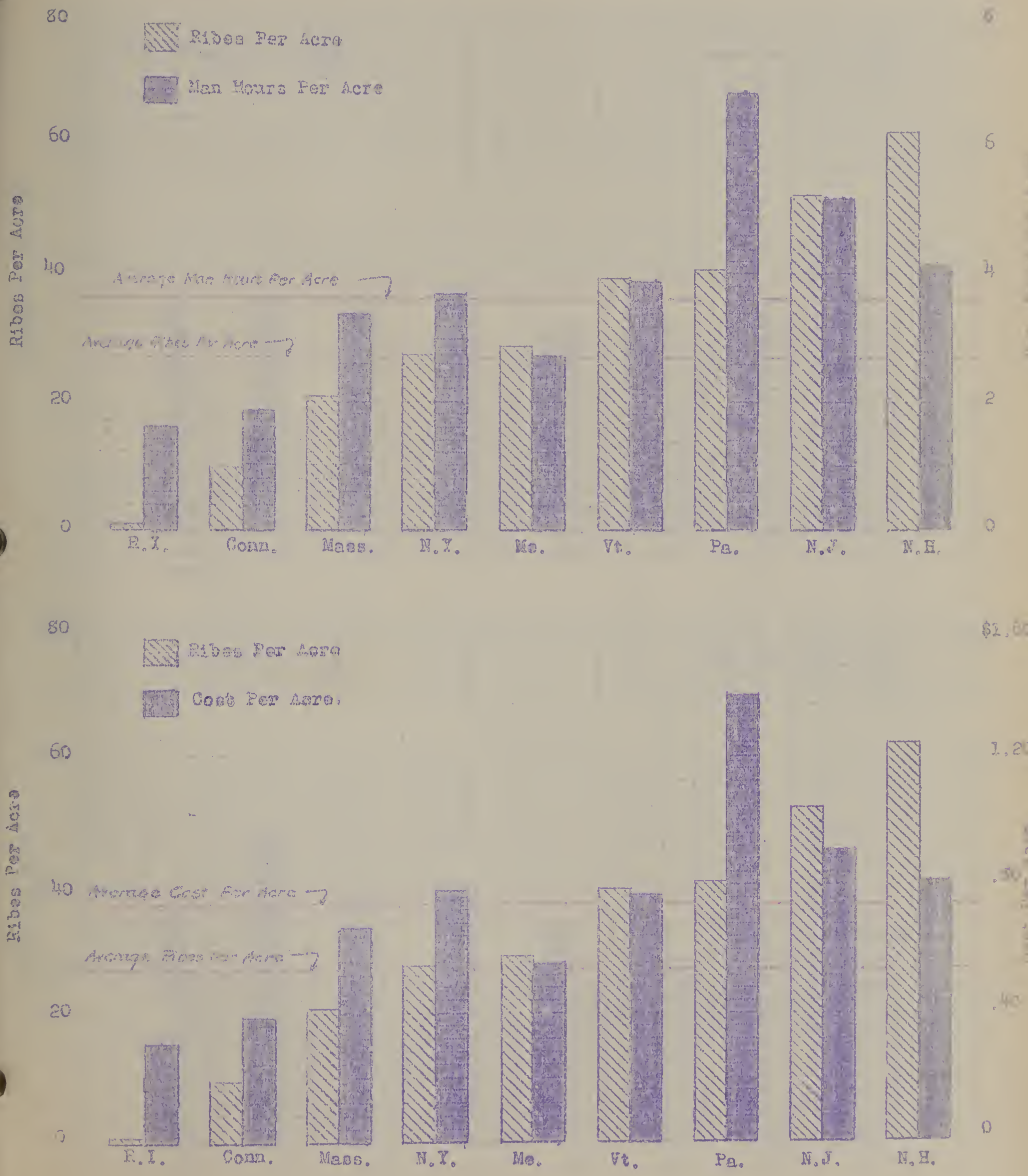
(Excludes nursery sanitation and cultivated black currant elimination)

By Years

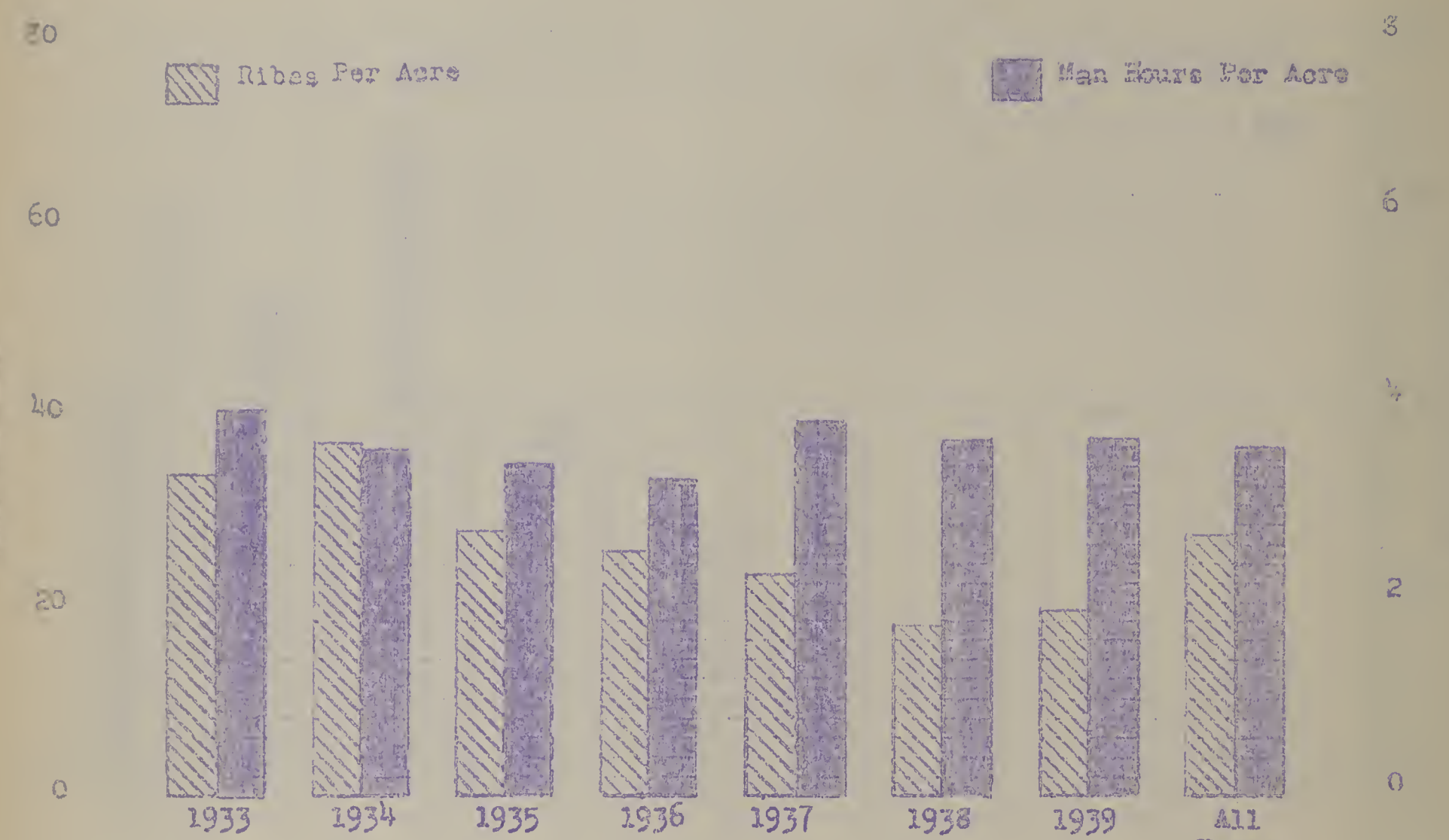
Year	Type of Erad.	Acreage Worked	Ribes Pulled		Total Man Days	Cost			Per Acre		
			Wild	Cult.		State	C.C.C.	Total	Cost	Ribes	Man Days
1933	Initial	125,328	5,584,682	4,674	65,658	-	98,309.68	98,309.68	.784	44.6	.52
	Re-Erad.	119,990	2,626,432	453	56,962	-	83,832.68	83,832.68	.699	21.9	.47
	Total	245,318	8,211,114	5,127	122,620	-	182,142.36	182,142.36	.742	33.5	.50
1934	Initial	240,433	11,254,398	8,205	106,932	2,269.80	168,122.47	170,392.27	.709	46.8	.44
	Re-Erad.	133,527	2,392,151	939	61,266	840.20	95,394.89	96,235.09	.721	17.9	.45
	Total	373,960	13,646,549	9,144	168,198	3,110.00	263,517.36	266,627.36	.713	36.5	.45
1935	Initial	333,431	11,418,110	22,185	154,909	11,709.21	234,977.46	246,686.67	.740	34.2	.46
	Re-Erad.	175,898	2,528,305	5,663	65,752	2,330.62	101,515.03	103,845.65	.590	14.4	.37
	Total	509,329	13,946,415	27,848	220,661	14,039.83	336,492.49	350,532.32	.688	27.4	.43
1936	Initial	293,825	10,735,179	20,508	146,380	5,593.99	242,011.80	247,605.79	.843	36.5	.50
	Re-Erad.	261,003	3,256,194	6,455	79,218	2,174.07	132,679.52	134,853.59	.517	12.5	.30
	Total	554,828	13,991,373	26,963	225,598	7,768.06	374,691.32	382,459.38	.689	25.2	.41
1937	Initial	152,782	4,876,068	10,037	88,692	392.85	151,107.47	151,500.32	.992	31.9	.58
	Re-Erad.	131,959	1,633,149	1,117	47,651	92.15	79,433.72	79,525.87	.603	12.4	.36
	Total	284,741	6,509,237	11,154	136,373	485.00	230,541.19	231,026.19	.811	22.9	.48
1938	Initial	100,397	2,620,543	2,034	56,717	2,337.85	94,525.59	96,863.44	.965	26.1	.56
	Re-Erad.	142,075	1,624,513	1,607	55,236	975.79	91,044.93	92,020.72	.648	11.4	.39
	Total	242,472	4,245,056	4,537	111,953	3,313.64	185,570.52	188,884.16	.779	17.5	.46
1939	Initial	60,192	1,617,664	1,993	30,024	-	65,213.07	65,213.07	1.05	26.9	.50
	Re-Erad.	95,500	1,353,938	645	41,603	-	89,722.65	89,722.65	.939	14.2	.44
	Total	155,692	2,971,602	2,638	71,627	-	154,935.72	154,935.72	.995	19.1	.46
Totals	Initial	1,306,388	46,106,664	70,436	649,312	22,303.70	1,054,267.54	1,076,571.24	.824	36.8	.50
	Re-Erad.	1,059,952	15,414,682	16,969	407,718	6,412.83	673,623.42	680,036.25	.642	14.5	.38
	Total	2,366,340	63,521,346	87,405	1,057,030	28,716.53	1,727,890.96	1,756,607.49	.742	26.8	.45

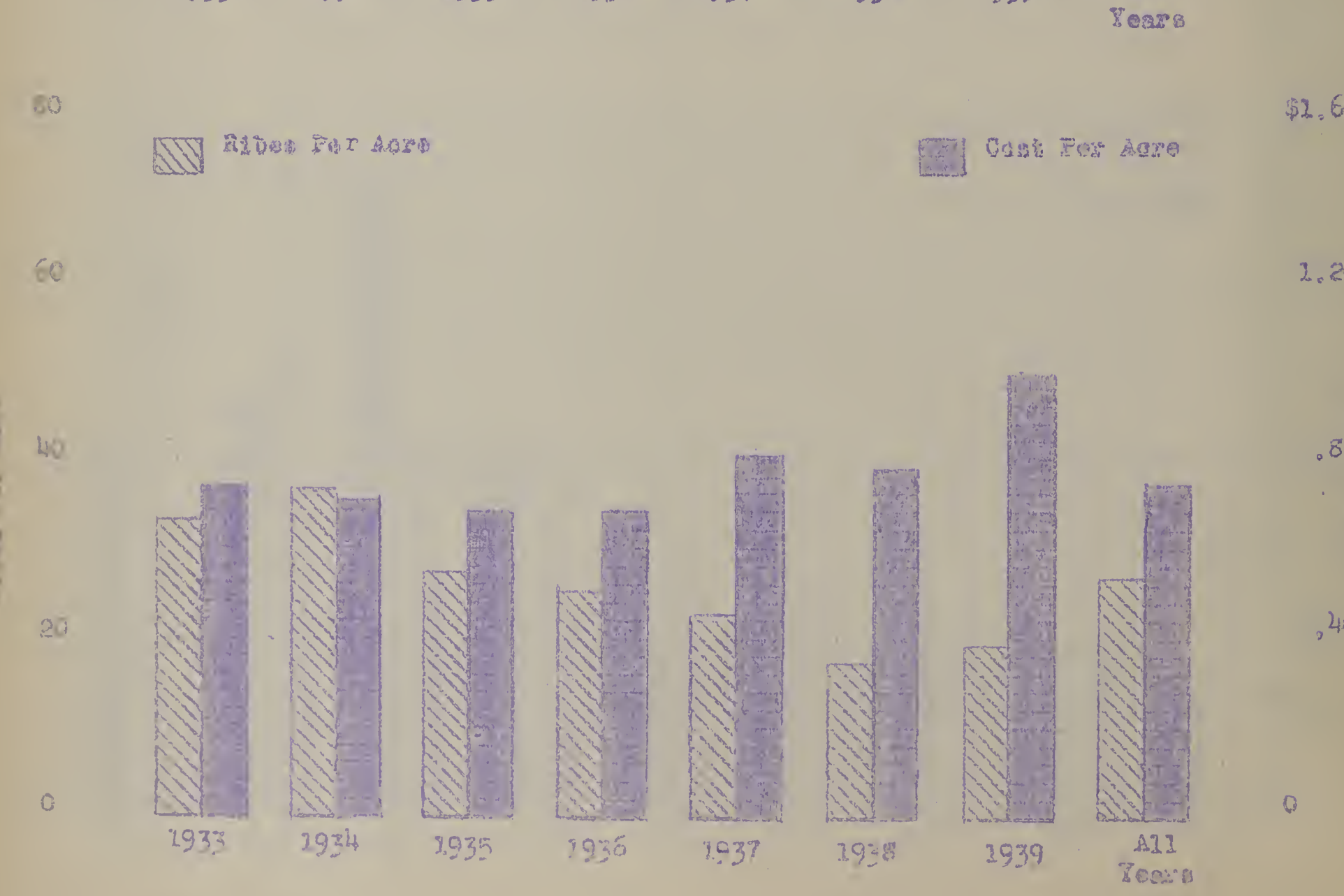
Basis of costs: See Page 43.

COMPARISON, BY STATES, OF PER ACRE VALUES FOR RIBES ERADICATION UNDER C.C.C. PROGRAM IN NORTHEASTERN STATES - 1933 to 1939, INCLUSIVE.



COMPARISON, BY YEARS, OF PER ACRE VALUES FOR RIBES ERADICATION WORK UNDER C.C.C. PROGRAM IN NORTHEASTERN STATES - 1933 to 1939, INCLUSIVE





Ribes Eradication Work on National Forests and Parks Under C.C.C. Program

C.C.C. crews have been assigned to Ribes eradication work at Acadia National Park in Maine each year, except 1938, since the inauguration of the program in 1933. Similar projects were conducted on the White Mountain National Forest in New Hampshire from 1933-1935, inclusive, and during 1938 and 1939. On the Allegheny National Forest in Pennsylvania control work was performed during 1934, 1935, and 1936. The initial control project is practically completed at Acadia National Park and about one third of the area has been reworked. With the exception of recent acquisitions, all white pine areas on the White Mountain National Forest have been given initial protection. About 1,500 acres of initial protection work is still needed on the Allegheny National Forest. Several of the areas on this forest have been re-examined for Ribes.

Table 27 shows the results of the Ribes eradication work at Acadia National Park and on the White Mountain National Forest during 1939 and presents totals for all control work performed by the C.C.C. on National Forests and Parks in this region during the period 1933 to 1939, inclusive.

Table 27 - Ribes Eradication Work Performed on National Forests and Parks Under C.C.C. Program in Northeastern States

1939

Project	Type of Erad.	Acreage Worked	Ribes Pulled: Wild	Ribes Pulled: Cult.	Total Man Days	Total Cost (All C.C.C.)	Per Acre: Cost	Per Acre: Ribes	Per Acre: Man Days
Acadia National Park, Me.	Initial	1,036	27,130	-	494	$931.65	.899	26.2	.47
	Re-Erad.	613	1,987	-	166	347.82	.567	3.2	.27
	Total	1,649	29,117	-	610	1,279.50	.776	17.7	.37
White Mt. National Forest, N.H.	Initial	56	273	-	5	11.85	.212	4.9	.10
	Re-Erad.	206	37,851	-	155	326.40	1.58	183.7	.75
	Total	262	38,124	-	161	338.25	1.29	145.5	.61
Totals	Initial	1,092	27,403	-	499	943.53	.864	25.1	.46
	Re-Erad.	819	39,838	-	321	674.22	.823	48.6	.39
	Total	1,911	67,241	-	771	1,617.75	.847	35.2	.40

1933 - 1939

Acadia National Park, Me.	Initial	12,942	389,217	293	8,420	13,468.20	1.04	30.1	.65
	Re-Erad.	9,407	35,191	-	3,562	5,988.71	.637	3.7	.38
	Total	22,349	424,408	293	11,982	19,456.91	.871	19.0	.54
White Mt. National Forest, N.H.	Initial	1,950	633,781	85	2,325	3,423.74	1.76	325.0	1.19
	Re-Erad.	3,799	309,521	-	1,700	2,811.47	.740	81.5	.45
	Total	5,749	943,302	85	4,025	6,235.21	1.08	164.1	.70
Allegheny National Forest, Pa.	Initial	3,267	630,356	22	2,045	3,166.92	.969	192.9	.63
	Re-Erad.	525	41,068	-	435	646.41	1.23	78.2	.83
	Total	3,792	671,424	22	2,480	3,813.33	1.01	177.1	.65
Totals	Initial	18,159	1,653,354	400	12,790	20,058.86	1.10	91.0	.70
	Re-Erad.	13,731	385,780	-	5,697	9,446.59	.688	28.1	.41
	Total	31,890	2,039,134	400	18,487	29,505.45	.925	63.9	.58

Basis of costs: - See Page 43.

These data are included in Tables 24 to 26, inclusive.

Table 28 - Supervision of Ribes Eradication Work Under C.C.C. Program in Northeastern States During 1939.

State	No. Technical Foremen and Checkers	Man Days Worked By Technical Foremen and Checkers	Cost		
			State	C.C.C.	Total
Maine	11	460	-	2,676.25	2,676.25
Mass.	2	140	692.13	83.27	775.40
Conn.	4	395	732.62	2,530.67	3,263.29
N. Y.	43	2,641	3,448.18	8,163.61	11,611.79
Penna.	41	2,138	-	14,226.58	14,226.58
Totals	101	5,775	4,872.93	27,680.38	32,553.31

The costs of the technical foremen and checkers employed on Ribes eradication work under the C.C.C. Program are not charged against the project "Ribes Eradication". Their costs, while engaged on blister rust control work, were charged to the project "Eradication Assistants and Checkers". In most instances, the technical foremen directed the work of from three to five C.C.C. crews of six men each.

Nursery Sanitation - C.C.C. Program

Special nursery sanitation work under the C.C.C. Program during 1939 was restricted to Pennsylvania where C.C.C. employees were used for 169 man days on re-eradication work in the environs of two state nurseries. A total of 336 wild Ribes were located and destroyed on the 780 acres re-examined. The total cost of this work was $384.66, or 49.3 cents per acre.

Table 29 shows the results of the nursery sanitation work, by states, during the period 1933-1939, inclusive.

Table 29 - Summary of Forest Sanitation Work Under C.C.C. Program in Northeastern States, 1933-1939, Inclusive.

State	Type of Erad.	Acreage Worked	Ribes Pulled: Wild	Ribes Pulled: Cult.	Total Man Days	Cost: State	Cost: C.C.C.	Cost: Total	Per Acre: Cost	Per Acre: Ribes	Per Acre: Man Days
Maine	Re-Erad.	691	8	-	81	-	129.82	129.82	.188	.01	.12
Vt.	Re-Erad.	700	1,500	-	174	417.90	108.00	525.90	.751	2.1	.25
R. I.	Re-Erad.	3,503	23	10	46	-	151.13	151.13	.043	.007	.01
Conn.	Initial	280	232	47	33	-	65.28	65.28	.233	0.8	.12
	Re-Erad.	1,779	3,589	4	635	-	1137.68	1137.68	.640	2.0	.36
	Total	2,059	3,821	51	668	-	1202.96	1202.96	.584	1.9	.32
N. Y.	Re-Erad.	630	17,750	-	182	318.40	255.50	573.90	.911	28.2	.29
Penna.	Re-Erad.	3,189	21,382	-	2,267	-	3683.83	3683.83	1.16	6.7	.71
Totals	Initial	280	232	47	33	-	65.28	65.28	.233	0.8	.12
	Re-Erad.	10,497	44,252	14	3,385	736.30	5465.96	6202.26	.591	4.2	.32
	Total	10,777	44,484	61	3,418	736.30	5531.24	6267.54	.582	4.1	.32

Basis of costs: - See Page 43.

Blister Rust Canker Elimination Work - C.C.C. Program

Blister rust canker elimination work under the C.C.C. Program in the Northeastern States during 1939 was confined to Acadia National Park where an average of 12 enlisted men and one technical foreman were used for 102 man days during October cutting out blister rust infections from scenic white pines along several of the roads and trails in the Park. A total of 400 pines were examined and 61 fatally infected trees cut down. In addition 622 branch infections and 56 stem cankers were removed from 239 other diseased pines. The total cost of this project at Acadia Park was $276.33

Table 30 - Blister Rust Canker Elimination Work Under C.C.C. Program in Northeastern States During Period 1933-1939, Inclusive.

State	Year	Est. Number Pines Examined	No. Totally Infected Pines Cut Down	No. Infected Pines From Which Cankers Removed	No. Cankers Removed: Branch	No. Cankers Removed: Stem	Total Man Days	Total Cost (All C.C.C.)
Maine (Acadia National Park)	1933	10,000	849	1,951	6,045	286	409	$920.46
	1934	23,625	145	581	1,675	66	159	318.65
	1935	3,000	325	1,737	7,802	671	352	552.30
	1936	16,100	1,341	3,192	8,983	1,436	1,000	1,500.00
	1938	5,136	236	1,129	1,927	176	155	354.96
	1939	400	61	289	622	56	102	276.33
	Totals	58,261	2,957	8,879	27,054	2,691	2,177	3,922.90
Penna.	1934	42,566	3,012	9,537	176,874	-	807	1,385.00
	1935	207,848	15,435	40,731	180,788	-	1,892	3,307.02
	1936	210,102	9,141	24,374	94,774	-	1,529	2,867.71
	1937	106,502	720	1,406	6,019	67	336	623.76
	Totals	567,018	28,308	76,048	458,455	67	4,564	8,203.09
Totals	1933	10,000	849	1,951	6,045	286	409	920.46
	1934	66,191	3,157	10,118	178,549	66	966	1,703.65
	1935	210,848	15,760	42,468	188,590	671	2,244	3,859.32
	1936	226,202	10,482	27,566	103,757	1,436	2,529	4,357.71
	1937	106,502	720	1,406	6,019	67	336	623.76
	1938	5,136	236	1,129	1,927	176	155	354.96
	1939	400	61	289	622	56	102	276.33
	Totals	625,279	31,265	84,927	485,509	2,758	6,741	12,125.99

Basis of costs: - Includes wages of C.C.C. personnel assigned to canker elimination work figured at $1.00 per eight hour man day plus 35¢ per man day for subsistence in 1933;

Basis of costs: 40¢ in 1934; and 50¢ during the period 1935-1939, inclusive - cost of crew transportation, and miscellaneous expenses for supplies and equipment.

Pine and Control Area Mapping - C.C.C. Program

The curtailment in the C.C.C. supervisory personnel (Blister rust checkers) in 1935 resulted in a corresponding decrease in the volume of mapping work, especially in New England and New York. Most of the mapping work in these states from 1935 to 1938, inclusive, was done by the C.C.C. enlisted personnel, but no pre-eradication survey work was performed in New England and New York during 1939. In some cases, where C.C.C. personnel has not been available for such survey work, control maps prepared by W.P.A. employees have been used for the C.C.C. projects. These control maps are very useful as they enable the foremen to readily locate the bounds of the control areas, and thus limit their activities to crew supervision.

In Pennsylvania, several checkers and C.C.C. laborers have been available for pre-eradication survey work each year since 1933. The results of the mapping work under the C.C.C. Program in Pennsylvania during 1939 were as follows:

Number towns worked	52
Number men employed	20
Acreage mapped.....	28,003
Miles boundary lines painted	270
Total man days	1,626
Total cost (all C.C.C.).....	$5,163.31

Table 31 - Pine and Control Area Mapping Under C.C.C. Program in Northeastern States During Period 1933-1939, Inclusive

State	Acreage Mapped	Acreage Examined But Not Mapped	Miles Boundary Lines Painted	Total Man Days	Cost		
					State	C.C.C.	Total
Maine	296,670	169,667	-	2,446	-	16,956.86	16,956.86
N. H.	81,096	2,740	-	3,963	-	11,168.98	11,168.98
Vt.	87,619	62,593	-	932	189.59	4,800.57	4,990.16
R. I.	106,224	-	-	935	-	7,675.26	7,675.26
Conn.	47,512	93,507	-	339	-	827.60	827.60
N. Y.	73,704	35,495	-	1,221	-	2,382.49	2,382.49
Penna.	282,394	-	2,226	26,852	-	97,835.14	97,835.14
Totals	975,219	364,002	2,226	36,738	189.59	141,655.90	141,845.49

Basis of costs: Includes actual salaries and transportation expenses of C.C.C. technical foremen and checkers assigned to mapping project - cost of enlisted men's time figured on same basis as listed for Table 30 - cost of mapping supplies.

Table 32 - Total Expenditures, By Cooperating Agencies, Under C.C.C. Program in Northeastern States
1939

State	State Funds	C.C.C.	Total
Maine	-	15,930.52	15,930.52
N. H.	-	338.25	338.25
Mass.	692.13	4,642.43	5,334.56
Conn.	732.62	9,637.41	10,370.03
N. Y.	3,448.16	66,316.06	69,764.24
Penna.	-	96,098.41	96,098.41
Totals	4,872.93	192,963.08	197,836.01

1933-1939, Inclusive

State	State Funds	P.W.A.	B.P.I.	W.P.A.	C.C.C.	Totals
Maine	135.00	-	-	-	329,781.49	329,916.49
N. H.	1,241.25	-	-	-	147,352.00	148,593.25
Vt.	1,548.49	-	35.50	-	88,834.64*	90,418.63
Mass.	1,719.39	-	-	946.15	60,476.65	63,144.52
R. I.	15.00	-	-	-	104,941.96	104,956.96
Conn.	4,349.40	244.36	1339.60	-	157,266.55**	163,199.91
N. Y.	62,966.77	-	-	300.60	728,018.25	791,285.62
N. J.	-	-	-	-	346.50	346.50
Penna.	2,056.24	-	-	-	778,072.93	780,129.17
Totals	74,033.57	244.36	1425.10	1249.25	2,395,091.02	2,472,043.30

* In addition, $203.33 C.C.C. funds were expended under the P.W.A. Program.

** An additional $218.40 C.C.C. funds were expended under the E.R.A. Program.

Table 33 - Total Cooperative Expenditures, By Projects, Under C.C.C. Program in Northeastern States During Period 1933-1939, Inclusive.

State	Period	Ribes Eradication	Eradication Assistants and Checkers	Nursery Sanitation	Treatment Diseased Pines	Field Data		Total
						Mapping	General	
	1939	12,977.94	2,676.25	-	276.33	-	-	15,930.52
Maine	1933-39	232,795.22	75,721.79	129.82	3,922.90	16,956.86	386.90	329,916.49
	1939	338.25	-	-	-	-	-	338.25
N. H.	1933-39	99,909.10	37,515.20	-	-	11,168.95	-	148,593.25
	1939	-	-	-	-	-	-	-
Vt.	1933-39	66,576.20	18,376.37	525.90	-	4,990.16	-	90,468.63
	1939	4,559.16	775.40	-	-	-	-	5,334.56
Mass.	1933-39	51,429.27	11,655.25	-	-	-	60.00	63,144.52
	1939	-	-	-	-	-	-	-
R. I.	1933-39	73,784.93	23,283.35	151.13	-	7,675.26	62.31	104,956.98
	1939	7,106.74	3,263.29	-	-	-	-	10,370.03
Conn.	1933-39	114,082.89	45,227.77	1,202.96	-	827.60	1,858.69	163,199.91
	1939	58,152.45	11,611.79	-	-	-	-	69,764.24
N. Y.	1933-39	598,650.29	189,524.29	573.90	-	2,388.49	150.85	791,287.82
	1939	-	-	-	-	-	-	-
N. J.	1933-39	346.50	-	-	-	-	-	346.50
	1939	71,801.15	14,226.58	384.66	-	5,168.31	4,517.68	96,098.41
Penna.	1933-39	519,030.09	133,420.86	3,683.83	8,203.09	97,838.14	12,953.16	780,129.17
	1939	154,935.72	32,553.31	384.66	276.33	5,168.31	4,517.68	197,836.01
Total	1933-39	1,756,607.49	539,724.88	6,267.54	12,125.99	141,845.49	15,471.91	2,472,043.30

BLISTER RUST CONTROL ACTIVITIES AND ACCOMPLISHMENTS UNDER E.R.A. PROJECTS IN THE NORTHEASTERN STATES

Allotments

WPA funds totaling $3,426,357.97 have been allocated for blister rust control work in the Northeastern States during the period July 25, 1935 to February 28, 1939. The allotments by states were as follows:

Maine	$560,061.70
New Hampshire	551,441.76
Vermont	347,060.74
Massachusetts	416,914.09
Rhode Island	41,474.15
Connecticut	83,705.05
New York	982,908.67
New Jersey	7,327.17
Pennsylvania	400,258.66
Sub-Total	3,401,151.97
Administrative	25,206.00
Grand Total	$3,426,357.97

The figures listed above represent the gross amount of money provided through various allotments to each state. The original allotments were made July 22, 1935. On June 10, 1936, a recision was made in each state. The withdrawals were largely offset July 8, 1936 through increased allotments by the President. Again on July 28 and September 15, 1936 the President awarded additional money. Also during 1936, the Bureau, with the approval of the WPA, made certain adjustments in funds between states on August 24, November 27 and December 11, 1936. Further adjustments and increases were made during calendar years 1937, 1938 and 1939. Table 56 gives detailed information on the various allotments to the States. The homeopathic procedure in allotting funds made it somewhat difficult in planning field activities, but did not cause any serious complications.

Purpose of Allotments

The specific objectives have been outlined as follows:

1. To protect our national resources of white pine from the blister rust by the systematic, thorough, and efficient elimination of Ribes from definite areas.

2. To employ in the locality of the work as many of the persons on public relief as may effectively be used.

3. To distribute opportunities for work as widely, geographically, and as equitably as may be practicable.

4. To aid in all possible ways the accomplishment of the other purposes of the Emergency Relief Appropriation Acts of 1935-1939, inclusive.

Economic and Social Value of Project

The white pine crop in the Northeastern States comprises over 7½ million acres and has a normal commercial value of $315,000,000. Millions of white pines are also being planted each year in connection with reforestation activities. The scenic, recreational, and water-shed protection value of this crop is likewise of tremendous importance.

The expenditure to December 31, 1939 of $3,308,162.15 WPA money (exclusive of administrative funds) on blister rust control in the rural portions of the Northeastern States has given 10,871 security-wage workers 6,164,100 man hours of useful self-perpetuating employment, directly benefitting persons who would otherwise have been on relief, since all in communities where there was a lack of other projects of a permanent public benefit. Our project was especially adapted to the employment of relief labor. It provided beneficial employment where little, except for supervision, was not necessary. The location of the work was such, that no mass treatment, transportation was not required to permit the men to get to work. Most important of all blister rust control projects [illegible] some of the other merits of the program. Its accomplishments have also materially aided in stimulating local business by increasing the amount of money in circulation.

Estimating that each of the 10,871 WPA employees that have worked on our project had three dependents, a total of 43,921 individuals were, at some time during the program, being fed, sheltered and clothed from wages earned in connection with this work. When the project was initiated very acute conditions in many communities were brought to our attention. Suffering from hunger was commonly noted. There were frequent occurrences for workers to report for duty with little or no breakfast and without lunch or funds to provide one. The elimination of these conditions, which disappeared gradually as the workers received reimbursement for their services, had a social value impossible to estimate.

The successful performance of Ribes eradication work required the closest cooperation between the individual members of the field units. It has been the constant aim of the district leaders and the local supervisors to develop this cooperative spirit and their efforts have met with unusual success. This has not only measurably increased the efficiency of the work, but the training the workers have received in this cooperative effort should have a helpful effect upon them as members of the community in which they reside.

One of the outstanding indirect accomplishments of this work has been to demonstrate to many individuals that the Bureau requires of its personnel full attention to the duties at hand. Many of the laborers originally had the idea that public work in general was not too laborious, not too important perhaps. They have gained a far different understanding as a result of their experience on the blister rust control project. Workers who have been unwilling to carry out instructions have been dealt with summarily to the credit of public work in general.

The enforcement of regulations forbidding smoking while working in the woods has also had a marked effect on the men. It has effectively demonstrated the need for the exercise of care to prevent the destruction of our forests through the careless use of smoking materials.

The interest displayed by the average worker has been surprisingly keen, particularly when the foreman in charge has successfully stimulated a competitive spirit among the members of his crew.

Nearly 11,000 men have received training in Ribes eradication work, and many of these persons will be available for similar work in the future. The training should also enable many of these men to maintain control of blister rust on their own properties.

Responsibilities and Direction of Work

The WPA funds with which we are concerned were specifically allocated to the United States Department of Agriculture, the Bureau of Entomology and Plant Quarantine, for expenditure by the Division of Plant Disease Control. The work is handled directly by the Department cooperating with the State WPA officers for labor assignments and with the U. S. Treasury for accounting and disbursing.

The WPA blister rust control work in each state is performed under the general plan embodied in the Memoranda of Understanding existing between the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture and cooperating States, and is fitted in with other control activities in the states so as to make a unified, coordinated work program. The Bureau, however, carries direct responsibility for both the fiscal and the technical phases of the work. The state forester or other collaborator in the state is consulted as to policies and is kept fully advised at all times. The state official administering the state plant pest laws enforces such state regulations as may be available for the effective prosecution of blister rust control work, and deputizes the cooperative employees to permit the destruction of such pine and Ribes as may be necessary and as provided by state laws. Federal money cannot be used to pay compensation for plants destroyed.

The Senior Pathologist of the Regional Office was made "Project Manager" for the WPA blister rust control program in the Northeastern States and was delegated the funds allotted for the respective nine states in the region. He was also given authority to obtain services and supplies and to incur expenditures under each state allotment. Letters of authorization were issued by the Bureau to him and to each state leader. These men in turn issued monthly sub-letters of authority where necessary to employees working under their direction.

Field Supervision

The successful results under the WPA program can be attributed in a large extent to the availability of a trained force of state and federally appointed district leaders and supervisors to direct the project in each district. Through the services of these men, it was possible to get the WPA employees working in the field within a few days after funds became available. These leaders were accustomed to supervising large groups of men and had little difficulty in adapting themselves to the WPA program. Most of the district leaders (the number varied from 30 to 37) have Civil Service status. All of these men were allowed expenses when

...from headquarters. Supervisors were used only during 1935 and 1936 when the employment of several thousand laborers made it necessary to provide our regular district leaders with assistants. The supervisors (maximum number 8?) were paid $155 per month plus reimbursement on a 5¢ per mile basis for use of their personally-owned machines on official work. The supervisors were not granted any per diem allowance and were employed only during the Ribes eradication season, except in a few instances where they were retained on mapping projects during the winter of 1935-1936.

Qualifications Established for Labor

In submitting requisitions for WPA labor in the field, the following qualifications were established:

1. Must be physically able to work all day.
2. No serious defects of eyesight.
3. Stable personality, good habits, good conduct, thoroughness, industriousness, reliability and willingness.

No restrictions were placed on the age of the workers, except that WPA regulations prevented the employment of any persons under 18 years of age. Regardless of relief status or any other consideration, WPA laborers were released when unable or unwilling to give full effort and value. The cooperation of the NRS and WPA offices usually prevented our project from being supplied with men obviously unsuited for the work. It is estimated that about 10 percent of the workers in 1935 had previous blister rust control experience, while during 1936 to 1939 at least 50 percent were experienced. In the field, only two classes of labor were used during the Ribes eradication seasons - unskilled laborers and crew foremen.

Source of Labor

During the period July 29, 1935 to August 13, 1936, all labor was secured direct from the local offices of the National Reemployment Service, at least 90 percent of the workers being taken from certified relief rolls. One of the outstanding experiences in the entire WPA Program has been the evidence of mutual cooperation between the N.R.S. and our district leaders. The closest cooperation prevailed from the inception of the work and as a result labor assignments were made without delay. From August, 1936 to July, 1937, the desired labor was obtained through the district WPA offices. With few exceptions, good cooperation was evidenced at all times, but the service was not as prompt as under N.R.S.

Since July, 1937, all the WPA administrative activities have been centralized at the respective state headquarters, which necessitated the submission of all labor requisitions to these offices. This procedure has materially delayed the assignment of workers and seriously handicapped the control work in some sections of the Northwest. Considerable difficulty was experienced during 1939 in obtaining the desired number of WPA laborers, and in many instances assignments were not made for a week or more after the reporting date on the requisitions. Many of our WPA workers, including the entire clerical force at the Regional Office, had to be released in August, 1939 due to the 18 months continuous employment provision in the 1939 Emergency Relief Act. As a result, it was necessary to use inexperienced foremen in many of the CPA crews during the remainder of the eradicat on season.

The 90-10 ratio required between relief and non-relief workers up to April 15, 1937 was consistently maintained in each state, except during the period June 1 to August 28, 1936 when 406 workers were exempted from the required ratio in Maine, New Hampshire and Vermont. Since April 16, 1937, WPA regulations have required that at least 95% of all employees be taken from relief rolls. This ratio has been maintained in all states, except Connecticut and New Jersey. As less than 20 WPA laborers were employed on the projects in each of these states, exemptions from the required 95-5 ratio were permitted in accordance with Sections 2 and 6 of WPA Administrative Order No. 54.

Personnel

Funds for blister rust control work under the W.P.A. Program were first made available July 25, 1935, and labor was being employed by July 29. During the first half of August, 1935, a total of 1,800 persons were on the W.P.A. payrolls. For the next two and a half months, the W.P.A. personnel averaged 2,955 employees. An average of 363 W.P.A. workers were employed chiefly on pre-eradication survey work during November and December, 1935. The average number of W.P.A. employees from 1936 to 1939 were as follows:

Period	Major Field Project: Pine & Control Area Mapping	Major Field Project: Ribes Eradication	Average No. W.P.A. Employees
January 1 to April 30, 1936	X		413
May 1 to September 30, 1936		X	4,146
October 1 to December 31, 1936	X		391
January 1 to April 30, 1937	X		543
May 1 to September 30, 1937		X	819
October 1 to December 31,1937	X		578
January 1 to April 30, 1938	X		378
May 1 to September 30, 1938		X	879
October 1 to December 31,1938	X		466
January 1 to April 30, 1939	X		404
May 1 to September 30, 1939		X	994
October 1 to December 31, 1939	X		142

A peak number of 4,457 workers were employed from July 1-15, 1936, and the average number was 1132 per semi-monthly period for the entire program to December 31, 1939.

Table 54 - Employment on Blister Rust Control Under W.P.A. Program
Calendar Year 1939

State	Security Wage Workers: Relief: Man Hours	Relief: Man Mos.	Relief: Man Yrs.	Non-Relief: Man Hours	Non-Relief: Man Mos.	Non-Relief: Man Yrs.	Appointees: Man Hours	Appointees: Man Mos.	Appointees: Man Yrs.	All Employees: Man Hours	All Employees: Man Mos.	All Employees: Man Yrs.
Maine	142,025	1,092.5	91.0	-	-	-	5,184	27.0	2.3	147,209	1119.5	93.3
N.H.	139,214	1,142.4	95.2	-	-	-	7,296	38.0	3.2	146,510	1180.4	98.4
Vt.	97,251	725.8	60.3	938	7.1	0.6	4,608	24.0	2.0	102,777	754.9	62.9
Mass.	124,247	965.2	80.4	256	2.0	0.2	5,184	27.0	2.3	129,687	994.2	82.9
R. I.	11,087	87.5	7.3	-	-	-	576	3.0	0.2	11,663	90.5	7.5
Conn.	12,052	100.4	8.5	-	-	-	1,152	6.0	0.5	13,204	106.4	9.0
N.Y.	217,524	1,687.2	140.6	-	-	-	10,752	56.0	4.7	228,276	1743.2	145.3
N.J.	-	-	-	-	-	-	-	-	-	-	-	-
Penna.	84,916	757.0	63.1	661	6.0	0.5	4,608	24.0	2.0	90,185	787.0	65.6
Sub-Totals	828,296	6,556.0	546.4	1855	15.1	1.3	39,360	205.0	17.2	869,511	6776.1	564.9
Admin	-	-	-	-	-	-	5,798	30.2	2.5	5,798	30.2	2.5
Totals	828,296	6,556.0	546.4	1855	15.1	1.3	45,158	235.2	19.7	875,309	6806.3	567.4

July 29, 1935 to December 31, 1939

State	Security Wage Workers: Relief: Man Hours	Relief: Man Mos.	Relief: Man Yrs.	Non-Relief: Man Hours	Non-Relief: Man Mos.	Non-Relief: Man Yrs.	Appointees*: Man Hours	Appointees*: Man Mos.	Appointees*: Man Yrs.	All Employees: Man Hours	All Employees: Man Mos.	All Employees: Man Yrs.
Maine	1,003,724	7,793.5	649.4	55,891	435.5	36.3	50,093	260.9	21.8	1,109,708	8,489.9	707
N.H.	927,795	7,451.1	620.9	116,540	915.6	76.3	55,891	291.1	24.3	1,100,224	8,657.8	721
Vt.	696,587	5,234.7	436.2	41,113	319.3	26.6	36,192	188.5	15.7	773,892	5,742.5	478
Mass.	636,001	4,950.6	412.5	9,077	70.7	5.9	43,450	226.3	18.9	688,528	5,247.6	437
R. I.	75,537	581.5	48.5	3,639	28.4	2.4	2,976	15.5	1.2	80,152	625.4	52
Conn.	145,253	1,147.4	95.7	1,830	14.2	1.2	8,487	44.2	3.7	155,570	1,205.8	100
N.Y.	1,671,409	13,006.5	1083.9	38,600	300.5	25.0	96,903	504.7	42.1	1,806,912	13,811.7	1151
N.J.	10,870	86.7	7.2	-	-	-	2,285	11.9	1.0	13,155	98.6	8
Penna.	679,411	5,913.9	492.8	22,829	190.2	15.8	44,832	233.5	19.5	747,072	6,337.6	528
Sub-Totals	5,844,585	46,165.9	3847.1	289,519	2274.4	189.5	341,109	1776.6	148.2	6,475,213	50,216.9	4184
Admin.	-	-	-	-	-	-	14,207	74.0	6.2	14,207	74.0	6
Totals	5,844,585	46,165.9	3847.1	289,519	2274.4	189.5	355,316	1850.6	154.4	6,489,420	50,290.9	4191

* Includes time paid supervisors during 1935 and 1936 for all accumulated leave taken after completion of their field services.

Table 35- Peak Employment, Man Year, and Man Month Cost of Blister Rust Control Work Under W.P.A. Program in Northeastern States.

Calendar Year 1939

State	Peak Employment No. Men	Peak Employment Period	Man Year Cost Over-All (1)	Man Year Cost Net (2)	Man Month Cost Over-All	Man Month Cost Net	Man Month Cost Operating Cost
Maine	217	6/16-6/30/39	735.07	788.65	61.26	62.78	5.20
N.H.	231	"	765.13	787.78	61.12	63.10	5.01
Vt.	178	6/1-6/15/39	729.13	753.07	60.75	62.75	4.80
Mass.	223	"	835.98	911.26	73.88	75.94	5.06
R.I.	24	6/16-6/30/39	745.35	765.77	61.77	63.39	5.21
Conn.	58	"	775.25	820.85	65.58	69.40	5.72
N.Y.	510	"	856.14	884.76	72.36	75.75	5.97
Penna.	181	6/1-6/15/39	742.69	756.05	61.91	63.86	5.08
Sub-Totals	-	-	789.02	813.80	65.73	67.83	4.47
Admin.	-	-	3,261.80	-	270.02	-	70.14
Totals	-	-	799.92	828.69	65.68	69.07	4.71

July 29, 1935 to December 31, 1939

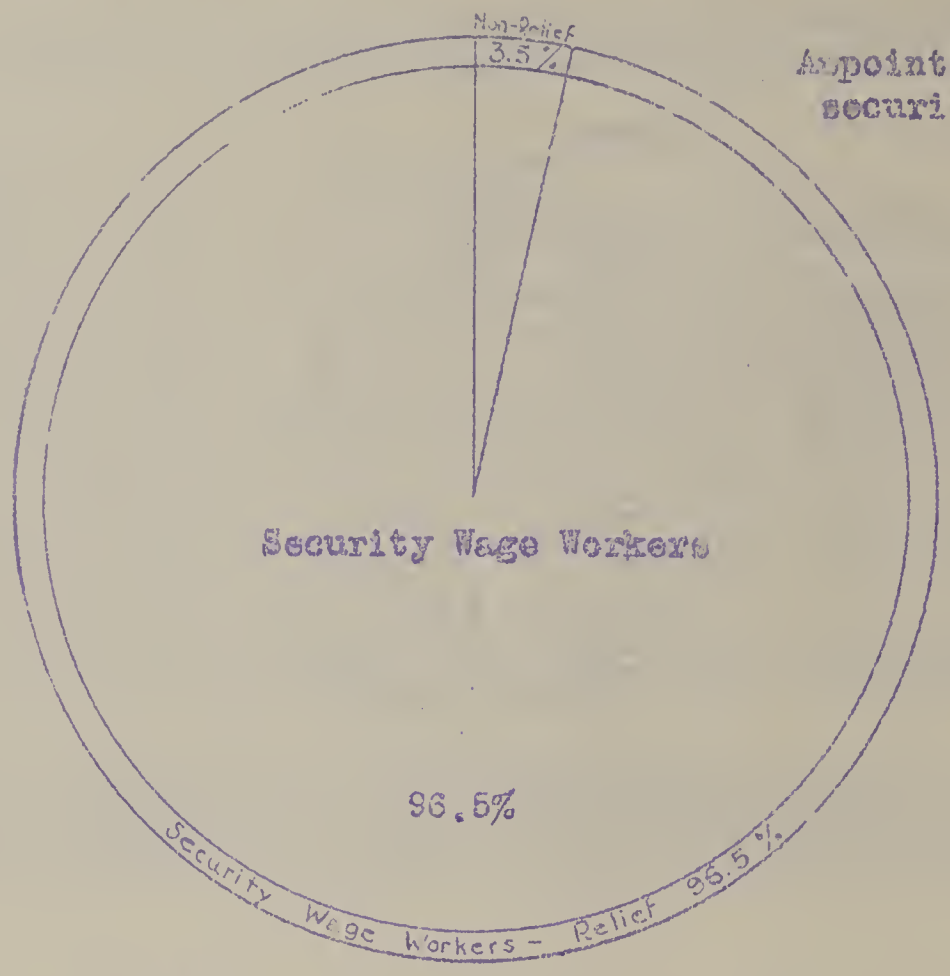
State	Peak Employment No. Men	Peak Employment Period	Man Year Cost Over-All (1)	Man Year Cost Net (2)	Man Month Cost Over-All	Man Month Cost Net	Man Month Cost Operating Cost
Maine	741	8/16-8/31/36	772.92	797.50	64.41	66.45	4.50
N.H.	905	6/1-6/15/36	741.91	767.77	61.83	63.98	4.30
Vt.	632	8/16-8/31/36	698.39	722.09	58.19	60.17	3.68
Mass.	327	6/1-6/15/36	922.72	964.40	76.89	80.36	4.95
R.I.	64	"	765.68	783.73	63.79	65.41	4.96
Conn.	115	9/1-9/15/35	826.58	858.14	68.96	71.59	5.96
N.Y.	1,184	6/1-6/15/35	841.20	873.14	70.10	72.76	4.38
N.J.	14	8/16-8/31/36	890.65	1014.36	74.07	84.34	2.17
Penna.	608	7/16-7/31/36	738.18	766.49	61.51	63.88	4.02
Sub-Totals	-	-	790.53	819.56	65.88	68.29	4.49
Admin.	-	-	3,264.66	-	272.09	-	70.34
Totals	-	-	794.18	824.56	66.18	68.71	4.46

(1) Based on total expenditures divided by number of security-wage and expenditure man years.

(2) Based on total expenditures divided by number of security-wage man years.

Data for Massachusetts include Cambridge, Massachusetts regional office employment and expenditures.

Personnel by Employment Classes on Blister Rust Control
WPA Program in Northeastern States - Calendar Year 1939

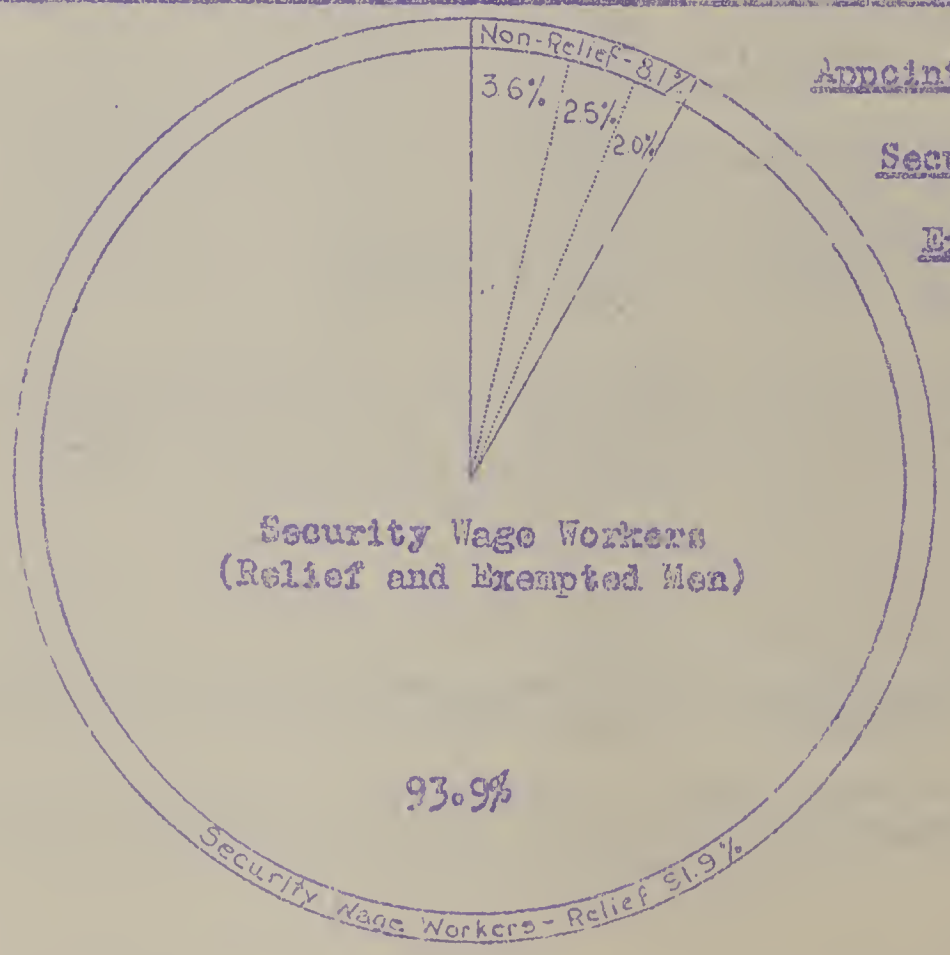


Appointees and non-relief security wage workers *

Total Man Months of Employment - 6,776.1

(*Appointees 3.1% and non-relief security wage workers 0.2%)

Personnel by Employment Classes on Blister Rust Control
WPA Program in Northeastern States July 29, 1935 - December 31, 1939, Inclusive.



Appointees

Security Wage Workers

Exempted from 90-10 ratio

Total Man Months of Employment - 50,216.9
(Includes 406 men exempted from 90-10 ratio in three states)

Table 36 - Man Months of Employment by Relief and Non-Relief Employees and the Status in Maintaining Required Ratio.

Calendar Year 1939

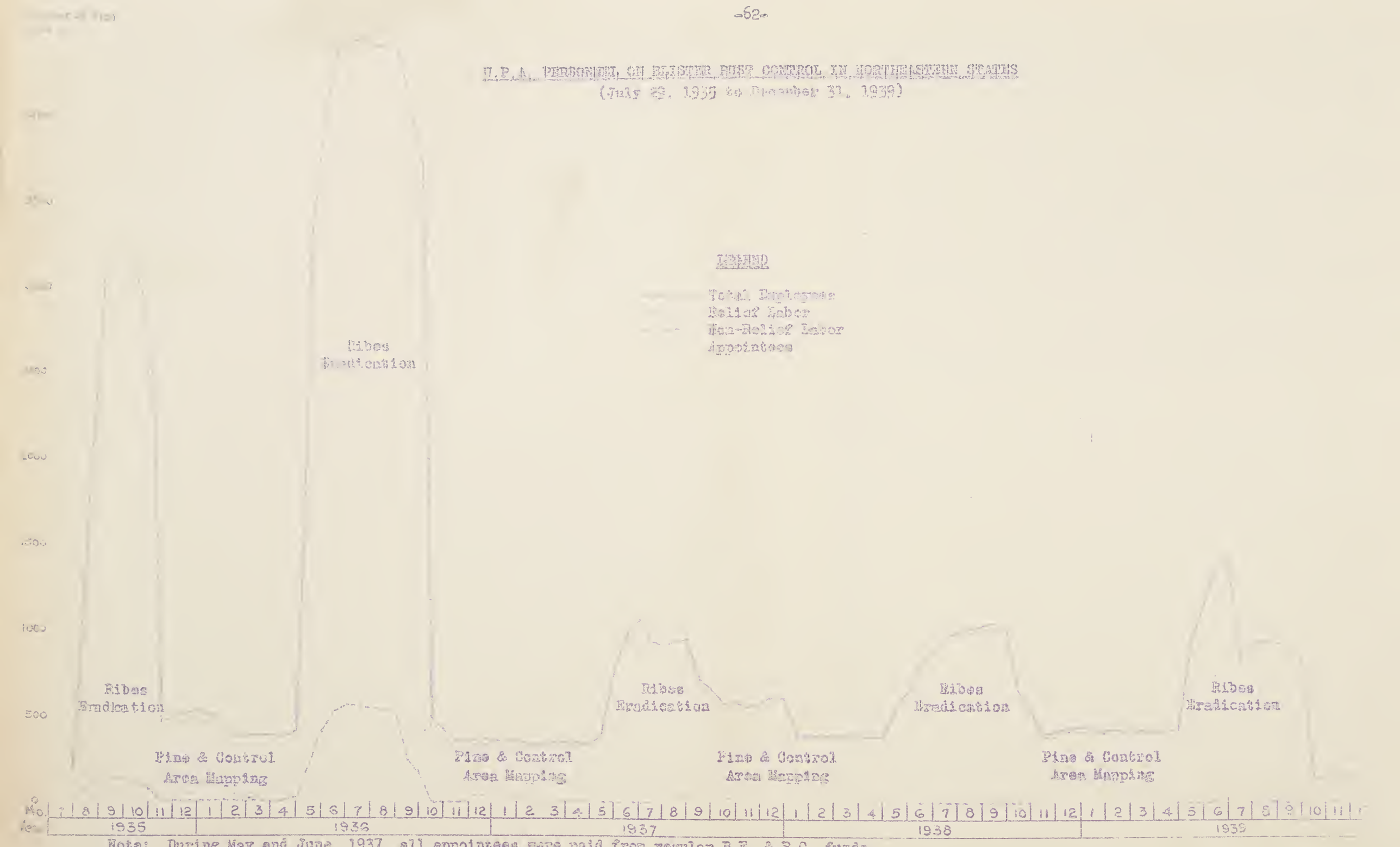
State	Total Man Months Employment		Man Months Surplus or Deficit Over Required Ratio
	Relief	Non-Relief	
Maine	1,092.5	27.0	+30.5
N.H.	1,142.4	38.0	+22.1
Vt.	723.5	51.1	+ 7.0
Mass.	965.2	29.0	+21.8
R.I.	87.5	3.0	+ 1.6
Conn.	100.4	3.0	- 0.7
N.Y.	1,687.2	55.0	+32.3
Penna.	757.0	30.0	+ 9.8
Totals	6,556.0	220.1	+124.9

July 29, 1935 to December 31, 1939

State	Total Man Months Employment		Man Months Surplus or Deficit Over Required Ratio
	Relief	Non-Relief	
Maine	7,793.5	696.4	- 7.2
N.H.	7,451.1	1,206.7	-566.1
Vt.	5,234.7	507.8	- 52.9
Mass.	4,950.6	297.0	+106.7
R.I.	581.6	43.9	+ 10.2
Conn.	1,147.4	58.4	+ 49.7
N.Y.	13,008.5	806.2	+347.3
N.J.	86.7	11.9	- 3.8
Penna.	5,913.9	425.7	+ 46.9
Totals	46,165.9	4,051.0	- 71.2

Excluding the 1,020.9 man months worked by 406 non-relief laborers exempted from the 90-10 ratio during the period June 1 to August 28, 1936, there actually has been a surplus of 949.7 man months of relief employment over the required ratio for the entire program.

U.P.A. PERSONNEL ON REGISTER RUST CONTROL IN NORTHEASTERN STATES
(July 23, 1935 to December 31, 1939)



Note: During May and June, 1937, all appointees were paid from regular E.E. & P.Q. funds.

Hours of Work and Wage Scales

The monthly hours of work and W.P.A. wage scales which were in force on December 31, 1938 for our blister rust control projects in the Northeastern States were continued until June 30, 1939 - see Table 57. It will be noted that county rates were paid in Maine, New Hampshire, and Pennsylvania while uniform state rates, based on the highest county rate in the district where the project was being operated, were established in Vermont, Massachusetts, Rhode Island, Connecticut, and New York. The maximum hours of work per month ranged from 98 in several counties in Pennsylvania to 138 in Vermont.

New State W.P.A. Administrators' Orders were issued on July 1, 1939 establishing monthly hours of work and earnings for employees assigned to our blister rust control projects. In accordance with the provisions of the Emergency Relief Act of 1939, all project workers were required to work 130 hours per month. The monthly wage rates were adjusted slightly in all states except Maine - see Table 57. Under the revised schedules of monthly earnings, the W.P.A. laborers assigned to control activities in this Region were required to work from 2 to 34 additional hours per month for approximately the same wages, except in Vermont where the monthly hours of work were reduced from 136 and 138 to 130.

Effective September 1, 1939, county rates were established for our projects in all states, except New York where the State W.P.A. Administrator approved statewide rates - see Table 57. The county rates were based on the 1930 population of the largest municipality in the county.

Table 37 - Approved W.P.A. Wage Scales For Federal Blister Rust Control Work in Northeastern States During Calendar Year 1939

A.- Rates For Period January 1 to June 30, 1939

State	Maximum Hours Per Month	Counties in Which Rates Applied	Monthly Wage Rate		
			Unskilled	Intermediate	Skilled
Maine	130	Cumberland	$52.00	61.10	75.40
	130	Androscoggin and Penobscot	46.10	55.90	70.20
	130	Kennebec, Knox, Oxford, Sagadahoc, Washington and York	44.20	50.70	63.70
	130	Franklin, Hancock, Lincoln, Piscataquis, Somerset and Waldo	42.90	49.40	62.40
N.H.	110	Belknap, Cheshire, Coos, Grafton, Strafford, Sullivan and Rockingham except towns of Londonderry, Derry, Salem and Windham	44.00	-	63.80
	116	Carroll	40.60	-	55.68
	120	Merrimack	48.00	-	69.60
	130	Hillsboro County and towns in Rockingham County excepted above	62.00	-	75.40
	130	Special order for foremen in Carroll County	-	-	82.40
Vt.	138	All	48.30	(136 Hrs) 54.40	69.00
Mass.	128	All	60.50	71.50	93.50
R.I.	123	All	55.35	65.19	85.48
Conn.	120	All	54.00	64.80	85.20
N.Y.	128	All	60.48	71.36	93.44
Pa.	96	Clarion, Jefferson, Forest, Bradford, Potter, Tioga, Susquehanna, Wayne, Armstrong, Venango, McKean, Warren. and Clinton	48.40	55.00	63.00
	105	Clearfield, Butler, Monroe, Centre, and Westmoreland	52.80	60.50	70.00
	114	Blair and Cambria	57.20	66.00	75.00
	120	Luzerne	60.50	71.50	85.00

Table 37 - Approved W.P.A. Wage Scales For Federal Blister Rust Control Work in Northeastern States During Calendar Year 1939

B.- Rates For Period July 1 to August 31, 1939

State	Maximum Hours Per Month	Counties in Which Rates Applied	Monthly Wage Rate		
			Unskilled A	Intermediate	Skilled
Maine	130	Cumberland	$52.00	61.10	75.40
	130	Androscoggin and Penobscot	48.10	55.90	70.20
	130	Kennebec, Knox, Oxford, Sagadahoc, Washington and York	44.20	50.70	63.70
	130	Franklin, Hancock, Lincoln, Piscataquis, Somerset and Waldo	42.90	49.40	62.40
N.H.	130	Belknap, Cheshire, Coos, Grafton, Strafford, Sullivan and Rockingham except towns of Derry, Londonderry, Salem and Windham	44.20	50.70	63.70
	130	Carroll	40.30	45.50	55.90
	130	Merrimack	48.10	55.90	70.20
	130	Hillsboro County and towns in Merrimack County excepted above	52.00	59.80	75.40
Vt.	130	All	48.10	54.60	68.90
Mass.	130	All	60.45	71.50	92.95
R.I.	130	All	55.90	65.00	"
N.Y.	130	All	59.80	71.50	(Non-Manual) 84.50
Pa.	130	Adams, Armstrong, Bedford, Bradford, Cameron, Clarion, Clinton, Crawford, Cumberland, Elk, Forest, Franklin, Fulton, Greene, Huntingdon, Indiana, Jefferson, Junita, McKean, Mifflin, Perry, Pike, Potter, Snyder, Sullivan Susquehanna, Tioga, Union, Venango, Warren, Wayne and Wyoming	49.40	55.90	63.70
	130	Butler, Centre, Clearfield, Fayette, Lebanon, Mercer, Monroe, Montour, Somerset, Washington and Westmoreland	53.30	61.10	70.20

Table 37 - Approved W.P.A. Wage Scales For Federal Blister Rust Control Work in Northeastern States During Calendar Year 1939

C.- Rates For Period September 1 to December 31, 1939

The following county rates were applicable in Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Pennsylvania:

Counties in Which 1930 Population of Largest Municipality Was	Maximum Hours Per Month	Monthly Wage Rates		
		Unskilled A	Inter-mediate	Skilled
Over 100,000	130	57.20	68.90	89.70
25,000 to 100,000	130	52.00	62.40	81.90
5,000 to 25,000	130	48.10	57.20	74.10
Under 5,000	130	42.90	52.00	67.60

In New York, the state wide rates established for the blister rust control project were the same as those listed above for counties where the 1930 population of the largest municipality was over 100,000.

Making Up of Lost Time by W.P.A. Labor

During the first few months of the program, considerable confusion existed as to whether or not it was necessary to make up credited time that had been lost due to inclement weather. Effective January 11, 1936, six states went on record as not requiring such lost time to be made up, but three states (New Hampshire, Massachusetts, and Rhode Island) continued to require the making up of such lost time. A W.P.A. regulation issued March 11, 1936 made it compulsory to make up credited lost time in all states. This procedure greatly complicated our record work, as it was necessary to determine for each payroll the amount of credited time and the amount of make up time. This condition continued until June 16, 1936 when instructions were issued that the W.P.A. labor would only be paid for time actually worked. In accordance with W.P.A. Administrative Order No. 56, dated May 18, 1937 employees have since that time been permitted to make up time lost due to weather conditions, sickness or injury, and temporary interruptions in the project due to circumstances beyond their control.

Transportation

Each district leader has been provided with a Government car for use in connection with his supervisory activities. Most of these automobiles are of the coach model type and were purchased with regular funds. However, 13 sedan delivery trucks were purchased from W.P.A. money during the fall of 1935 and assigned to some of the district leaders whose cars were no longer serviceable for long trips. Instead of turning in their old automobiles, the cars were assigned to some of the W.P.A. supervisors during 1936 and have been used for transporting W.P.A. crews since that time. No Government trucks have been purchased for transporting W.P.A. laborers, because of the seasonal nature of our project. However, during December, 1937, arrangements were made to obtain 16 half-ton Dodge trucks, with pick-up bodies, from the Bureau of Entomology and Plant Quarantine Office at Greenfield, Massachusetts. These trucks were available for transfer due to the curtailment of the gypsy and brown-tail moth control project under the W.P.A. Program. Five additional sedan delivery trucks were purchased from W.P.A. funds during 1939 and assigned to district leaders in Maine, New Hampshire, Massachusetts, and New York.

All W.P.A. workers on our project travel to and from work on their own time. Instructions have been issued to the supervisory force to provide transportation where the daily cost to the worker exceeded car fare, normally 20 cents per day. A survey made in August, 1936 showed that 42 percent of the W.P.A. personnel employed at that time rode to and from work at their own expense, 38 percent traveled in cars provided at Government expense, 19 percent used automobiles furnished by towns and counties, while only 1 percent walked.

Whenever transportation was necessary at Government expense, one of the following procedures was authorized:

1. Personally-owned cars at rate of 4 cents per mile for security-wage workers, and 5 cents per mile for appointees.

2. Personally-owned cars on owner-operator basis. This arrangement proved very satisfactory, but was limited to cars owned and operated by relief security wage workers. Under this procedure, the owner was paid not only for his personal services on the work, but also for the use of his car. Instructions were issued by the Work Projects Administrator on February 11, 1939 that rentals of owner-operated equipment paid on payroll would no longer be permissible in accordance with a ruling by the Comptroller General.

3. Trucks hired on a contractual basis, where the total payments under one agreement did not exceed $300.00. Only a few contracts of this type were made.

Safety Measures

Copies of all W.P.A. instructions concerning safety regulations have been furnished the supervisory personnel in the Northeastern States and the field men instructed accordingly. Each crew, consisting of 3 to 6 men, is provided with a first-aid kit and the foreman is responsible for applying any first-aid measures that may be required. Considerable confusion existed as to the application of the automobile regulations and the inspection of the machines by W.P.A. officials. Only a few inspections have been made. Red flags and flares have also been provided for all cars transporting W.P.A. workers on our project. Experienced drivers have been selected to operate the Government cars assigned to project, and all of these drivers have been furnished with Government operators' licenses.

Injuries and Compensation to W.P.A. Workers

During the period July 29, 1935 to December 31, 1939, a total of 10,871 security-wage workers have been employed for 6,134,104 man hours on the W.P.A. blister rust control activities in the Northeastern States. In spite of the large force of men employed, only 580 alleged injuries were reported up to December 31, 1939. The following summary shows a classification of the alleged injuries sustained during the entire program.

Table 33 - Classification of Alleged Injuries Sustained on W.P.A. Blister Rust Control Project in Northeastern States

(By States)

State	No. Alleged Injuries, By Classes															
	Poison Ivy		Infections		Blood Poisoning		Fractures		Sprains Cuts & Bruises		Organic		Misc.		Total	
	1939	1935 to 1939	1939	1935 to 1939	1939	1935 to 1939	1939	1935 to 1939	1939	1935 to 1939	1939	1935 to 1939	1939	1935 to 1939	1939	1935 to 1939
Me.	6	21	2	10	-	1	-	-	2	9	3	7	-	1	13	49
N. H.	-	15	2	7	-	-	-	1	4	33	1	12	-	4	7	72
Vt.	3	52	3	27	-	2	1	4	4	45	4	33	1	9	16	172
Mass.	2	33	2	7	-	-	-	2	3	25	1	15	-	1	8	83
R. I.	3	3	-	-	-	-	-	1	1	2	-	1	-	-	4	7
Conn.	-	2	-	2	-	-	-	-	-	-	1	2	-	-	1	6
N. Y.	1	37	2	14	-	1	-	1	10	40	5	24	1	11	19	128
N. J.	-	1	-	-	-	-	-	-	-	1	-	1	-	-	-	3
Pa.	1	21	3	7	-	-	-	2	4	20	-	9	-	1	8	60
Totals	16	185	14	74	-	4	1	11	28	175	15	104	2	27	76	580
% Total	21.1	31.9	18.4	12.8	-	0.7	1.3	1.9	36.9	30.2	19.7	17.9	2.6	4.6	100.0	100.0

(By Years)

Year	Poison Ivy	Infections	Blood Poisoning	Fracture	Sprains Cuts & Bruises	Organic	Misc.	Total
1935	20	14	2	3	31	11	10	91
1936	92	27	1	6	81	54	12	273
1937	28	11	1	1	16	12	1	70
1938	29	8	-	-	19	12	2	70
1939	16	14	-	1	28	15	2	76
Total	185	74	4	11	175	104	27	580

Only one death occurred, and this was from meningitis which resulted from a twig piercing the ear of an employee in New York during 1935. One other New York employee had an arm amputated during 1938 after being treated since August, 1936. In this case, infection developed from a bee sting on the right hand. The Compensation Commission has awarded this man full compensation benefits to February 17, 1943.

Nearly one third of the total injuries to December 31, 1939 were due to ivy poisoning. Approximately thirty percent of the total cases were sprains and bruises, principally to feet, legs and the back. Only one of the sprains was of a serious nature. The majority of the 10½ organic injuries were to the eyes, but there was no case where the sight was lost. Eleven cases of fracture were reported, including one instance where an employee's leg was broken as a result of an automobile accident. This was the only automobile accident involving injuries to W.P.A. employees reported for the duration of the program. A total of 7¼ cases of infection occurred, due chiefly to thorns being forced into various parts of the body, mostly the hands and fingers, but in only one instance was the consequence serious.

Table 39 - Number of Accidents Per 100 W.P.A. Employees* And Compensation Payments Made to Such Employees Injured on Blister Rust Control Work in Northeastern States

(Summary of payments compiled from reports received from Compensation Commission)

1939

State	Total No. Men* Employed	Total Man Hours Employment *	Total No. Alleged Injuries	No. Injuries Per 100 Employees	No. Men Paid Compensation	Total Amount Paid	Average Amount Paid Per Case
Maine	324	142,025	13	4.0	1	24.56	24.56
N. H.	396	139,214	7	1.8	2	12.51	6.25
Vt.	246	98,169	16	6.5	4	30.00	7.50
Mass.	260	124,503	8	3.1	1	49.33	49.33
R. I.	32	11,087	4	12.5	-	-	-
Conn.	38	12,052	1	2.6	-	-	-
N. Y.	470	217,524	19	4.0	2	613.44	306.72
Penna.	256	85,577	8	3.1	-	-	-
Totals	2,022	830,151	76	3.8	10	729.84	72.98

July 29, 1935 to December 31, 1939

Maine	1,805	1,059,615	49	2.7	11	76.22	6.93
N. H.	1,950	1,044,333	72	3.6	12	88.19	7.32
Vt.	1,574	737,700	172	10.9	35	587.92	16.80
Mass.	960	645,076	83	8.6	6	327.76	54.72
R. I.	134	77,176	7	5.2	1	295.00	295.00
Conn.	297	147,053	6	2.0	1	6.67	6.67
N. Y.	2,692	1,710,009	128	4.8	28	2,095.15	74.83
N. J.	29	10,870	3	10.3	0	0	-
Penna.	1,397	702,240	60	4.3	4	415.00	103.75
Totals	10,871	6,134,104	580	5.3	100	4,001.93	40.02

* Security Wage workers only.

No report has been received from the Compensation Commission as to the cost of medical treatment and hospitalization of the injured workers.

Activities of the Regional Office - Cambridge, Massachusetts
(Especially as related to the WPA Program)

Duties

Prior to the advent of the emergency programs, the personnel of the Regional Office was limited to the senior pathologist, an assistant and a secretary-stenographer. The activities were confined chiefly to general supervision of blister rust control in the Northeastern States. The office work consisted of the preparation of budgets and plans of work, summarization and analysis of field data and accomplishments, and the preparation of weekly and monthly personnel and progress reports. In addition, annual reports were prepared summarizing the results accomplished under each project in each of the States of the Northeastern Region. Property records were also kept at the Regional Office. The permanent federal personnel in the Northeastern States consisted of a state leader in each of the nine states and a total of 29 district leaders. The payrolls, expense accounts and 1034 forms for these men were handled at the Washington Office.

Under the W.P.A. Program, which began July 29, 1935, practically all office work in connection with this program was assigned to the Regional Office. The office work consisted of the following items:

Preparation of project applications, budgets, plans, and contracts; preparation of payrolls for a maximum of 4,457 men; auditing of expense accounts for a maximum of 116 appointed employees and 75 laborers operating personally-owned automobiles on a mileage basis; auditing all 1034 vouchers or invoices for contractual items, purchase of supplies and equipment for the entire region or arranging for such purchases through the procurement office; administrative record work in connection with compensation cases; issuance of instructions to field personnel; and preparation of new items and weekly, semi-monthly, monthly, fiscal and calendar year reports covering all phases of control activities.

Personnel

A chief clerk was added to the Regional Office personnel just prior to the start of W.P.A. activities in July 1935, and two additional assistants have been employed continuously since the summer of 1935. One or two temporary appointees have also been used during the summer months each year to assist on checking work. The clerical force at the Regional Office since the W.P.A. Program has been in operation consisted of from 6 to 22 workers, all of these employees being taken from relief rolls.

During the first seven months of the calendar year 1939, seven relief workers were employed continuously at the Regional Office. Five of these workers had been on the project since its inception in 1935, and the other two were assigned during the spring of 1936. As a result of the training and experience gained by these employees during the past three to four years, their services had gradually become more valuable. Due to the 18 months continuous employment provision in the Emergency Relief Act of 1939, it was necessary to release the entire W.P.A. clerical force at the Cambridge Office by the end of August, 1939. The loss of these experienced employees was a serious handicap, especially as it occurred prior to the termination of the 1939 Ribes eradication work. Considerable difficulty was experienced in obtaining replacements, and several workers were released after a fair trial had indicated that they were not qualified for the positions. One of

the experienced clerks who was released in August because of 18 months continuous employment was re-assigned to our project during the latter part of October, while another (stenographer) was also reassigned on February 28, 1940. Seven W.P.A. clerks are employed at the Regional Office at the present time.

Payroll Procedure

Time sheets for the W.P.A. laborers have been submitted by the district leaders semi-monthly direct to the Cambridge Office. The payrolls were prepared there from these time sheets, (usually the day they were received) and forwarded to the Treasury Accounts Office at Boston for payment. Since April 1, 1938, all checks have been sent direct to the employee by the Disbursing Office of the U.S. Treasury. A few checks were reported lost during the period 1935-1938, but not a single check was lost during the calendar year 1939.

Up to December 31, 1939, a total of 6,641 W.P.A. payrolls have been prepared at the Cambridge Office. The intervals between the dates the payrolls were submitted to the Treasury Accounts Office and the dates the checks were issued are shown in Table 40.

Table 40 - Tabulation Showing Time Involved from Date Payroll Vouchers Transmitted To Treasury Accounts Office to Date Checks Were Issued

Days Involved	Number of Vouchers		Percent	
	Calendar Year 1939	July 29, 1935 to Dec. 31, 1939	Calendar Year 1939	July 29, 1935 to Dec. 31, 1939
1	198	1,156	18.4	17.4
2	436	1,540	40.4	23.2
3	300	1,470	27.9	22.1
4	96	1,072	8.9	16.2
5	38	635	3.5	9.6
6	2	387	0.2	5.8
7	5	232	0.5	3.5
8	"	102	"	1.5
9	"	25	"	0.4
10	1	9	0.1	0.1
11	"	3	"	0.1
12	"	4	"	0.1
13	"	2	"	0.0 +
14	"	1	"	0.0 +
15	"	"	"	"
16	1	1	0.1	0.0 +
17	"	"	"	"
18	"	"	"	"
19	"	"	"	"
20	"	2	"	0.0 +
Total	1,077	6,641	100.0	100.0

Payroll Encumbrances

During the period July 29, 1935 to January 31, 1936, the Treasury Accounts Office required the establishment of an advance encumbrance for each payroll. This method entailed a large amount of clerical work. Fortunately, the system was changed on February 1, 1936 and since that time we have been permitted to set up advance encumbrances covering the total estimated amount to be obligated by each official project for each payroll period. Prompt action is also taken by the Treasury Department in cancelling unobligated encumbrances for which Forms A-5A are issued by our office.

Procurement Procedure

On January 26, 1939, the Procurement Division of the Treasury Department authorized the senior pathologist and his assistant to act as procurement representatives in making purchases of equipment, supplies, and materials required for immediate official use where the amount does not exceed $50.00. This authority has been used to advantage, but whenever practicable requisitions have been submitted to the Procurement Division covering purchases for which immediate delivery was not essential.

Blanket encumbrances for each state-wide project are set up through the use of Treasury Form A-6 to cover purchases made without reference to the Procurement Division. Purchase orders are prepared at the Regional Office and the invoices covering such purchases are submitted to this office by the vendors for transmittal to the Procurement Division along with copies of the purchase orders and receiving and inspection reports. The Procurement Division prepares all 1034 vouchers for these purchases and forwards the accounts to the Treasury Accounts Office for payment. Copies of these paid vouchers, as well as those for purchases made by the Procurement Division, are supplied our office by the Treasury Department.

In cases of emergency, the blister rust control leaders are permitted to make purchases of small supplies and equipment in the field and include such items in their monthly expense account - Form 1012.

Payment of Accounts

Excellent service has been rendered by the Treasury Department in the auditing and payment of 1012 vouchers. However, since the Procurement Division assumed responsibility for preparing all 1034 vouchers in January 1939, there has been considerable delay in payment of such vouchers resulting in several complaints by the vendors. This matter was discussed with the Regional Procurement Officer and we were advised that the policy of that office was not to pay such obligations in less than 30 days except in the case of discount vouchers. During recent months, payments in most instances have been made more promptly.

Accomplishments in Blister Rust Control Under the W.P.A. Program in The Northeastern States

Ribes Eradication Work During 1939

Ribes eradication was the major field activity performed on the blister rust control project under the W.P.A. Program. Such work was conducted in 226 townships in 64 counties of the Northeastern States during the period May to September, 1939. A total of 420,641 acres, practically all on individually-owned lands, was cleared of 3,826,765 wild Ribes and 15,119 cultivated bushes as a result of 74,062 man days of work during the 1939 season.

Six-man crews each consisting of five unskilled laborers and a foreman were used on the 1939 W.P.A. Ribes eradication work. Practically all of the areas were systematically examined by crews in strip formation, as personnel problems and funds available did not permit the employment of scouts on this work. This procedure resulted in the destruction of numerous Ribes concentrations, but was a factor in restricting the amount of acreage examined.

Table 41 - Distribution of Work and W.P.A. Personnel Employed on Ribes Eradication Work in Northeastern States - 1939

State	No. Counties in Which Work Performed	No. Towns Where Work Performed	No. Security Wage Workers	
			Maximum	Average *
Maine	12	49	217	170
N. H.	8	35	231	176
Vt.	9	19	178	122
Mass.	6	37	216	140
R. I.	1	1	24	19
Conn.	1	2	35	32
N. Y.	20	79	310	236
Penna.	7	44	161	116
Totals	64	266	1,395	1,011

* For period May 1 to September 30, 1939.

Table 42 - Ribes Eradication Work Performed Under W.P.A. Program in Northeastern States During 1939
(Excludes nursery sanitation and cultivated black current elimination)

State	Type of Erad.	Acreage		Ribes Pulled		Total Man Days	Cost				Per Acre		
		Total Worked	Pine Protected	Wild	Cult		Local Coop.	State	W.P.A.	Total	Cost	Ribes	Man Days
Maine	Initial	25,945	9,228	894,946	1,552	6,239	1,197.77	203.58	18,404.62	19,805.97	.763	34.5	.24
	Re-Erad.	42,689	17,279	755,214	609	7,867	3,122.99	554.49	22,146.66	25,824.14	.605	17.7	.18
	Total	68,634	26,507	1,650,160	2,161	14,103	4,320.76	758.07	40,551.28	45,630.11	.665	24.0	.21
N.H.	Initial	16,590	10,270	709,574	1,314	4,959	56.80	26.34	16,005.46	16,088.60	.970	42.8	.30
	Re-Erad.	32,624	20,750	574,429	84	6,310	109.32	39.55	21,129.74	21,278.61	.652	17.6	.19
	Total	49,214	31,020	1,284,003	1,398	11,269	166.12	65.89	37,135.20	37,367.21	.759	26.1	.23
Vt.	Initial	21,142	5,332	1,026,882	296	6,275	1,488.89	-	19,407.89	20,896.78	.988	48.6	.30
	Re-Erad.	8,727	2,267	381,457	138	2,390	454.87	-	7,665.34	8,120.21	.930	43.7	.27
	Total	29,869	5,599	1,408,339	434	8,665	1,943.76	-	27,073.23	29,016.99	.971	47.1	.29
Mass.	Initial	32,776	9,601	296,509	1,269	2,307	369.75	257.78	8,585.12	9,210.65	.281	9.0	.07
	Re-Erad.	68,592	23,738	645,063	1,393	8,486	1,390.82	1,085.71	31,580.41	34,056.94	.497	9.4	.12
	Total	101,368	33,339	941,572	2,662	10,793	1,760.57	1,343.49	40,163.53	43,267.59	.427	9.3	.11
R.I.	Initial	4,511	2,257	11,294	348	1,218	-	-	4,381.74	4,381.74	.971	2.5	.27
	Re-Erad.	658	284	1,012	32	147	-	-	597.48	597.48	.908	1.5	.22
	Total	5,169	2,541	12,306	380	1,365	-	-	4,979.22	4,979.22	.963	2.4	.26
Conn.	Initial	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	3,281	522	93,233	-	913	-	-	3,417.35	3,417.35	1.04	28.4	.28
	Total	3,281	522	93,233	-	913	-	-	3,417.35	3,417.35	1.04	28.4	.28
N.Y.	Initial	88,943	32,023	1,738,361	6,344	14,191	-	8,375.65	50,293.62	58,669.27	.660	19.5	.16
	Re-Erad.	41,205	15,099	433,757	150	5,296	-	3,996.77	18,136.33	22,133.10	.537	10.5	.13
	Total	130,148	47,122	2,172,118	6,494	19,487	-	12,372.42	68,429.95	80,802.37	.621	16.7	.15
Penna.	Initial	32,728	4,300	1,263,178	1,590	7,396	-	-	28,558.50	28,558.50	.873	38.6	.22
	Re-Erad.	230	43	1,859	-	68	-	-	301.22	301.22	1.31	8.1	.30
	Total	32,958	4,343	1,265,037	1,590	7,464	-	-	28,859.72	28,859.72	.876	38.4	.23
Totals	Initial	222,635	71,011	5,940,744	12,713	42,585	3,113.21	8,863.35	145,634.95	157,611.51	.708	26.7	.19
	Re-Erad.	198,006	79,982	2,886,024	2,406	31,477	5,078.00	5,676.52	104,974.53	115,729.05	.584	14.6	.16
	Total	420,641	150,993	8,826,768	15,119	74,062	8,191.21	14559.87	250,609.48	273,340.56	.650	21.0	.18

Basis of costs: The cost figures are based on the total cost of laborers and foremen employed in locating and pulling Ribes; transportation of crews; and miscellaneous expenses for trail paper, picks, etc. The cost of any supervisors assigned to the W.P.A. control projects is not included in above expenditures for Ribes eradication.

Table 43 - Ribes Eradication Work Performed Under W.P.A. Program in Northeastern States During Period 1935 - 1939, Inclusive.
(Excludes nursery sanitation and black currant elimination)

By States

State	Type of Erad.	Acreage Worked	Ribes Pulled		Total Man Days	Cost				Per Acre		
			Wild	Cult.		Local Coop.	State	W.P.A.	Total	Cost	Ribes	Man Days
Maine	Initial	252.675	12.592.217	7.520	59.476	2.918.70	2.752.08	205.198.60	210.869.38	.835	49.8	.24
	Re-Erad.	263.426	5.767.670	8.645	47.729	4.956.78	1.985.01	165.034.34	171.976.13	.653	21.9	.18
	Total	516.101	18.359.887	16.165	107.205	7.875.48	4.737.09	370.232.94	382.845.51	.742	35.6	.21
N. H.	Initial	232.452	9.271.697	7.003	51.585	635.06	175.99	175.775.77	176.586.82	.760	39.9	.22
	Re-Erad.	259.564	5.304.849	1.529	47.623	1.766.51	163.38	162.806.83	164.736.72	.635	20.4	.18
	Total	492.016	14.576.546	8.532	99.208	2.401.57	339.37	338.582.60	341.323.54	.694	29.6	.20
Vt.	Initial	155.982	5.161.742	3.601	49.592	11.911.89	172.08	147.876.48	159.960.45	1.03	33.1	.32
	Re-Erad.	74.647	1.544.892	1.056	19.924	3.688.21	131.26	62.372.63	66.192.10	.887	20.7	.27
	Total	230.629	6.703.634	4.657	69.516	15.600.10	303.34	210.249.11	226.152.55	.981	29.1	.30
Mass.	Initial	147.178	1.312.102	16.177	15.462	2.820.16	847.30	59.365.19	63.032.65	.428	6.9	.11
	Re-Erad.	271.062	3.378.227	9.252	40.694	9.336.44	5.158.02	157.965.72*	172.460.18	.636	12.5	.15
	Total	418.240	4.690.329	25.429	56.156	12.156.60	6.005.32	217.330.91*	235.492.83	.563	11.2	.13
R. I.	Initial	8.710	15.381	791	1.944	-	-	7.315.22	7.315.22	.840	1.8	.22
	Re-Erad.	41.967	67.602	3.150	6.940	-	294.73	26.057.56	26.352.29	.628	1.6	.17
	Total	50.677	82.983	3.941	8.884	-	294.73	33.372.78	33.667.51	.664	1.6	.18
Conn.	Initial	16.227	87.906	2.138	2.287	-	22.94	6.944.53	6.967.47	.553	5.4	.14
	Re-Erad.	46.053	654.926	906	12.095	684.00	42.52	46.290.27	47.016.86	1.02	14.2	.26
	Total	62.280	742.832	3.044	14.382	684.00	65.46	55.234.80	55.984.33	.898	11.9	.23
N. Y.	Initial	561.611	17.696.595	25.280	151.200	176.00	65.846.07	561.914.09	627.937.02	1.06	29.6	.26
	Re-Erad.	151.460	2.043.314	3.169	27.443	174.40	13.785.49	101.067.45	115.027.34	.759	17.5	.17
	Total	713.071	20.270.209	28.449	178.643	350.40	79.631.56	662.982.44	742.964.36	.996	27.6	.24
N. J.	Initial	3.625	27.127	299	951	-	298.10	3.862.70	4.160.40	1.15	5.8	.26
	Re-Erad.	1.417	16.956.	15	392	-	-	1.631.36	1.631.36	1.15	12.0	.28
	Total	5.042	38.083	314	1.343	-	298.10	5.493.66	5.791.76	1.15	7.6	.27
Penna.	Initial	177.118	10.413.224	12.408	64.674	-	336.70	243.734.07	244.077.77	1.38	58.8	.37
	Re-Erad.	14.888	1.035.790	522	7.254	-	-	26.984.10	26.984.10	1.81	69.6	.49
	Total	192.006	11.449.014	12.930	71.928	-	336.70	270.725.17	271.061.87	1.41	59.6	.37
Totals	Initial	1.585.578	56.502.291	75.217	397.171	18.461.81	70.451.22	1.413.994.15	1.502.907.18	.946	35.6	.25
	Re-Erad.	1.124.484	20.411.226	28.244	210.099	20.606.34	23.560.48	730.210.26*	782.377.08	.705	18.2	.19
	Total	2.713.062	76.913.517	103.461	607.270	39.068.15	94.011.70	2.164.204.41*	2.297.284.26	.846	26.3	.22

* Includes $6.53 B. E. and P. Q. funds.

Basis of control: Same as listed for Table 42.

Table 44 - Ribes Eradication Work Performed Under W.P.A. Program in Northeastern States During Period 1935 - 1939, Inclusive

(Excludes nursery sanitation and cultivated black current elimination)

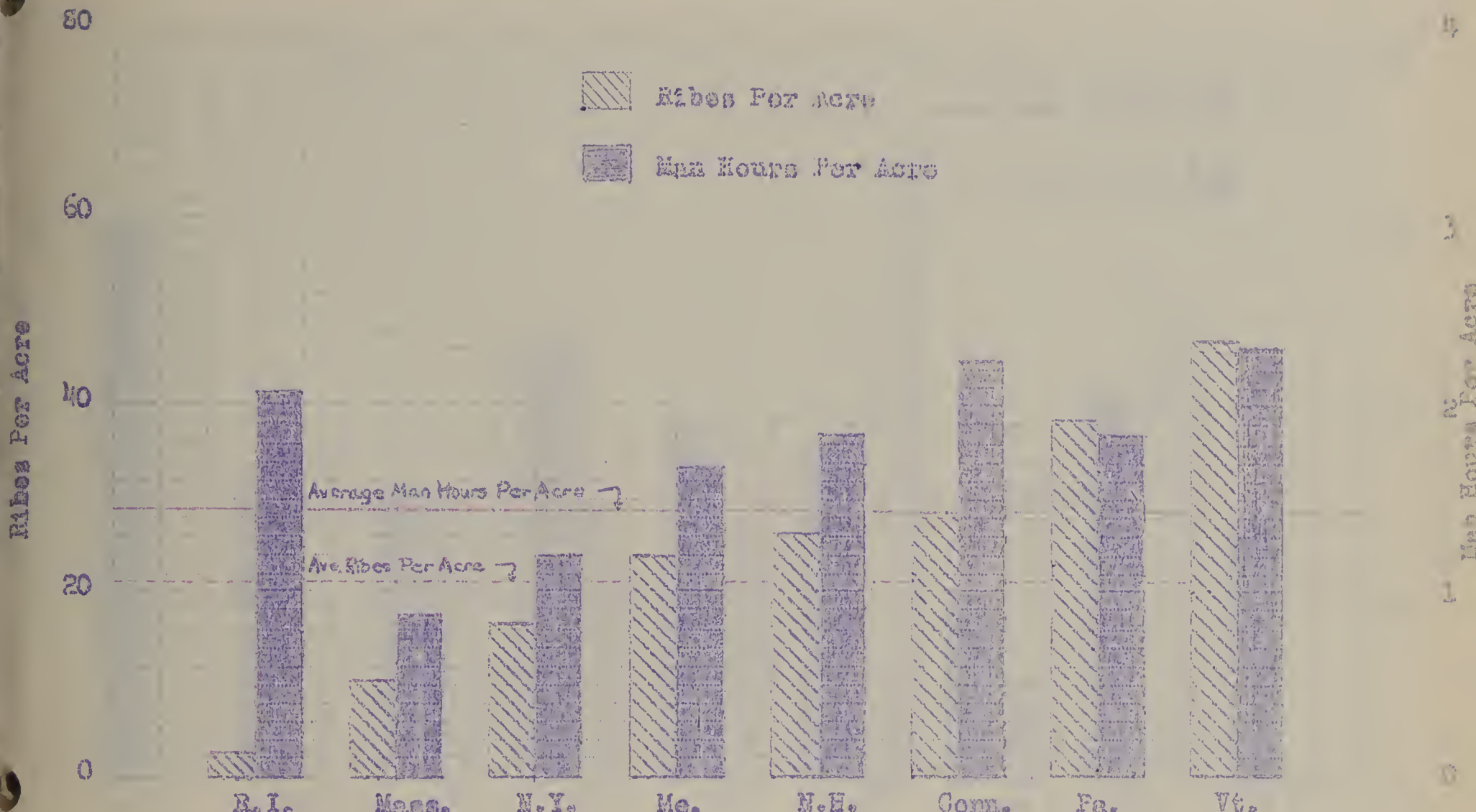
(By Years)

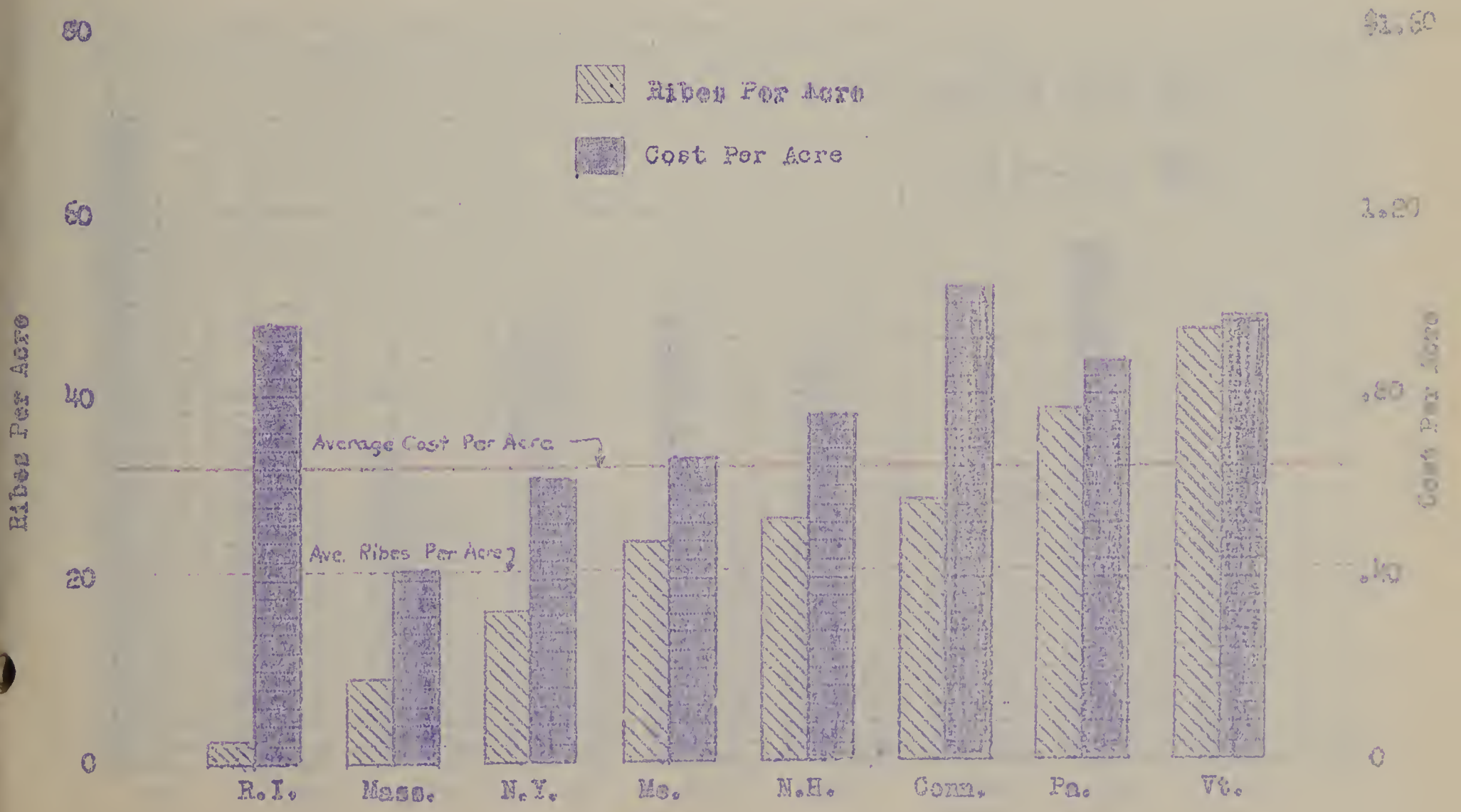
Year	Type of Erad.	Acreage Worked	Ribes Pulled		Total Man Days	Cost				Per Acre		
			Wild	Cult.		Local Coop.	State	W.P.A.	Total	Cost	Ribes	Man Days
1935	Initial	263,756	9,460,626	19,392	77,575	2,037.37	11,269.79	266,098.93	279,406.09	1.06	35.9	.29
	Re-Erad.	156,885	2,545,100	3,592	35,518	2,193.55	2,884.91	127,308.20	132,386.66	.844	16.2	.23
	Total	420,643	12,005,726	22,984	113,096	4,230.92	14,154.70	393,407.13	411,792.75	.979	28.5	.27
1936	Initial	727,485	29,901,209	30,843	196,039	8,459.72	23,247.39	715,199.52	746,906.63	1.03	41.1	.27
	Re-Erad.	450,011	10,687,609	15,137	95,291	5,936.15	4,003.29	347,746.90	357,686.34	.795	23.7	.21
	Total	1,177,496	40,588,818	45,980	291,330	14,395.87	27,250.68	1,062,946.42	1,104,592.97	.938	34.5	.25
1937	Initial	184,382	6,901,878	4,966	41,050	2,492.47	17,074.16	143,791.44	163,358.07	.886	37.4	.22
	Re-Erad.	127,088	2,037,375	1,554	19,132	2,506.61	4,409.69	69,807.63	76,723.93	.604	16.0	.15
	Total	311,470	8,939,253	6,520	60,182	4,999.08	21,483.85	213,599.07	240,082.00	.771	28.7	.19
1938	Initial	190,318	4,297,834	7,303	39,919	2,359.04	9,996.53	143,269.31	155,624.88	.818	22.6	.21
	Re-Erad.	192,494	2,255,118	5,555	28,681	4,892.03	4,586.07	100,373.00*	109,851.10	.571	11.7	.15
	Total	382,812	6,552,952	12,858	68,600	7,251.07	14,582.60	243,642.31*	265,475.98	.693	17.1	.18
1939	Initial	222,635	5,940,744	12,713	42,585	3,113.21	8,863.35	145,634.95	157,611.51	.708	26.7	.19
	Re-Erad.	198,006	2,886,024	2,406	31,477	5,078.00	5,676.52	104,974.53	115,729.05	.584	14.6	.16
	Total	420,641	8,826,768	15,119	74,062	8,191.21	14,539.87	250,609.48	273,340.56	.650	21.0	.18
Totals	Initial	1,588,578	56,502,291	75,217	397,171	18,461.81	70,451.22	1,413,994.15	1502,907.18	.946	35.6	.25
	Re-Erad.	1,124,484	20,411,226	28,244	210,099	20,606.34	21,560.48	750,210.26	792,377.08	.705	18.2	.19
	Total	2,713,062	76,913,517	103,461	607,270	39,068.15	92,011.70	2,164,204.41	2,295,284.26	.846	28.3	.22

* Includes $8.53 B.E. and P.Q. funds.

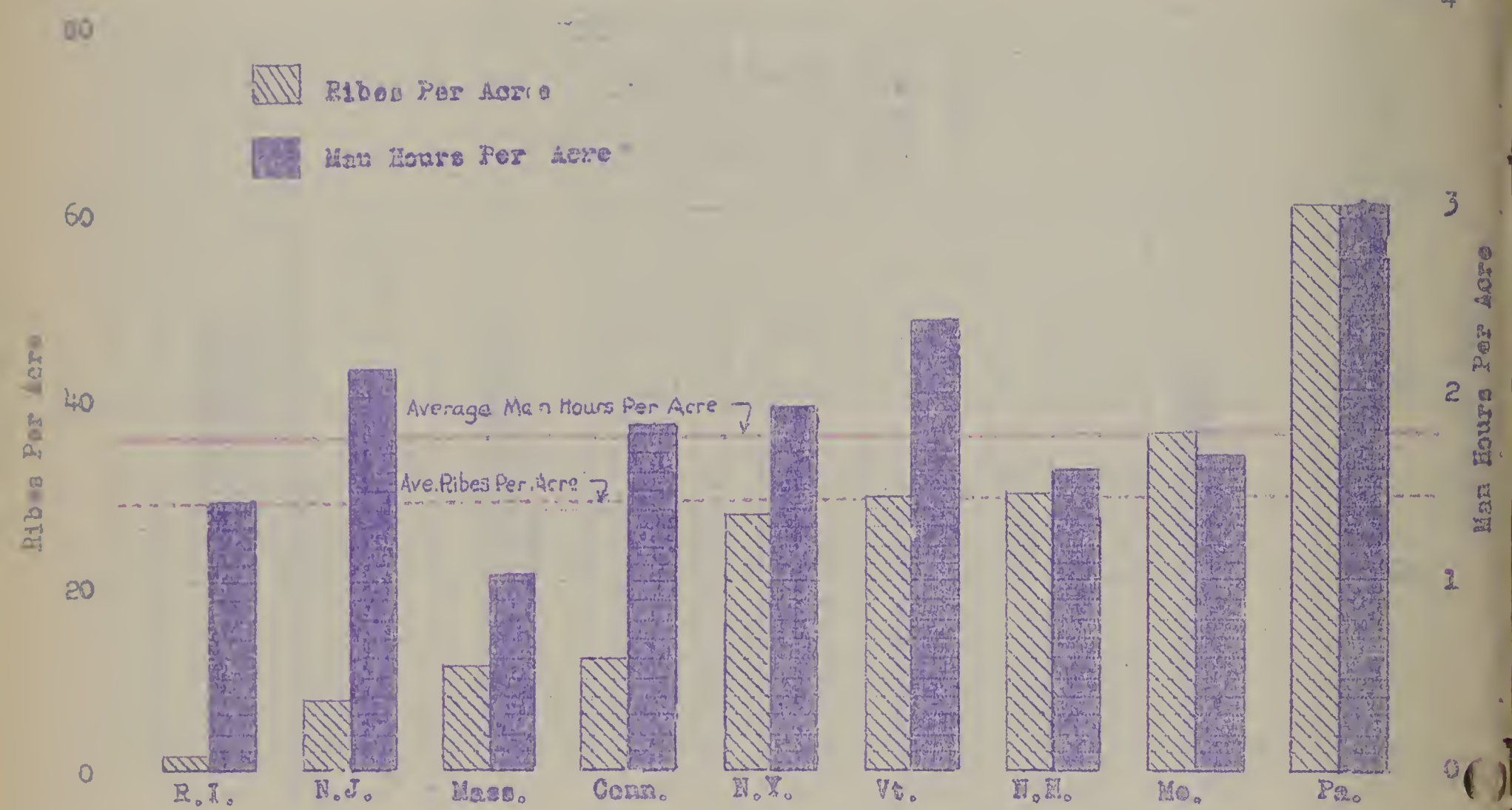
Basis of costs: Same as listed for Table 42.

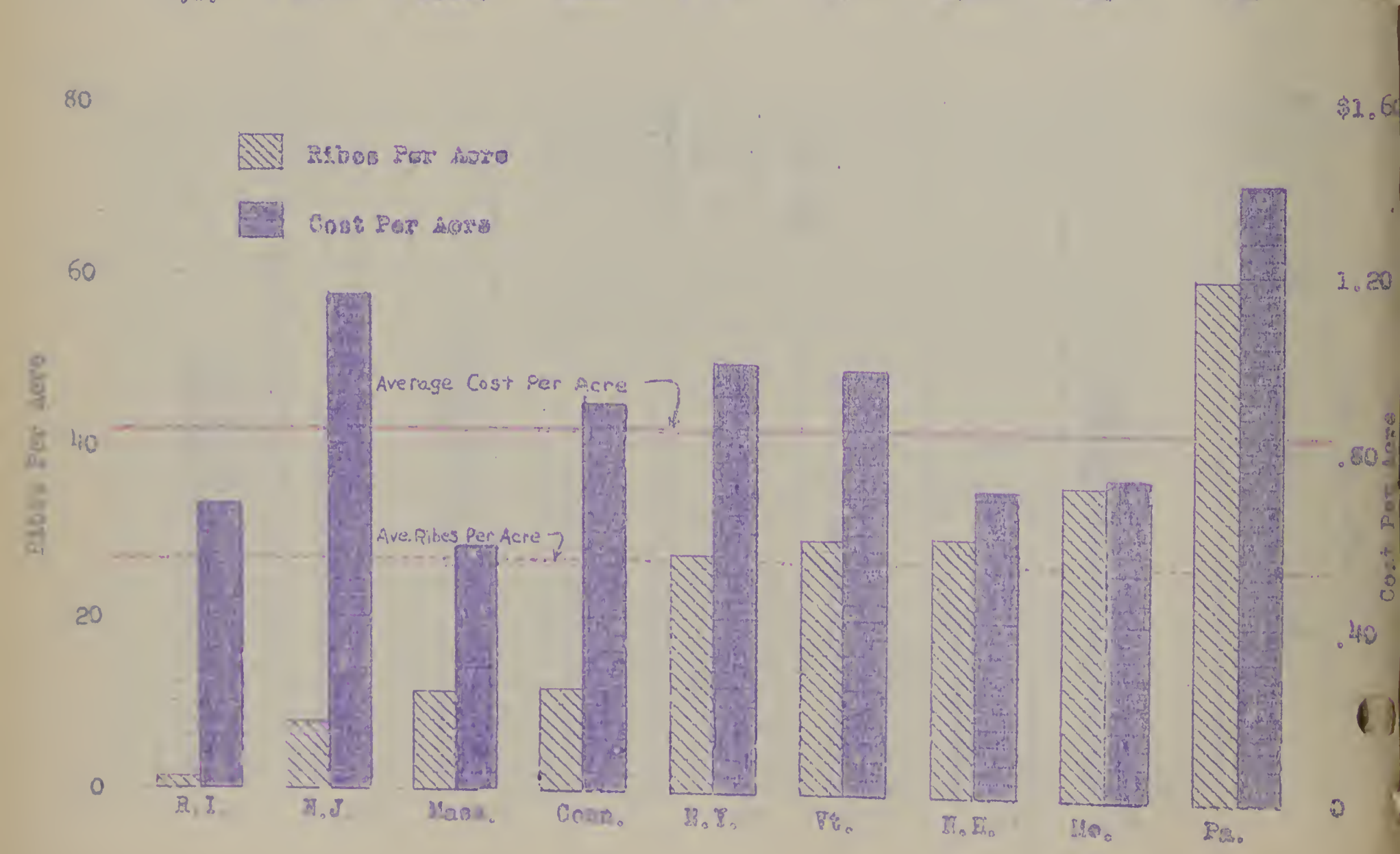
COMPARISON, BY STATES, OF PER ACRE VALUES FOR RIBES ERADICATION WORK
W.P.A. PROGRAM - NORTHEASTERN STATES - 1939



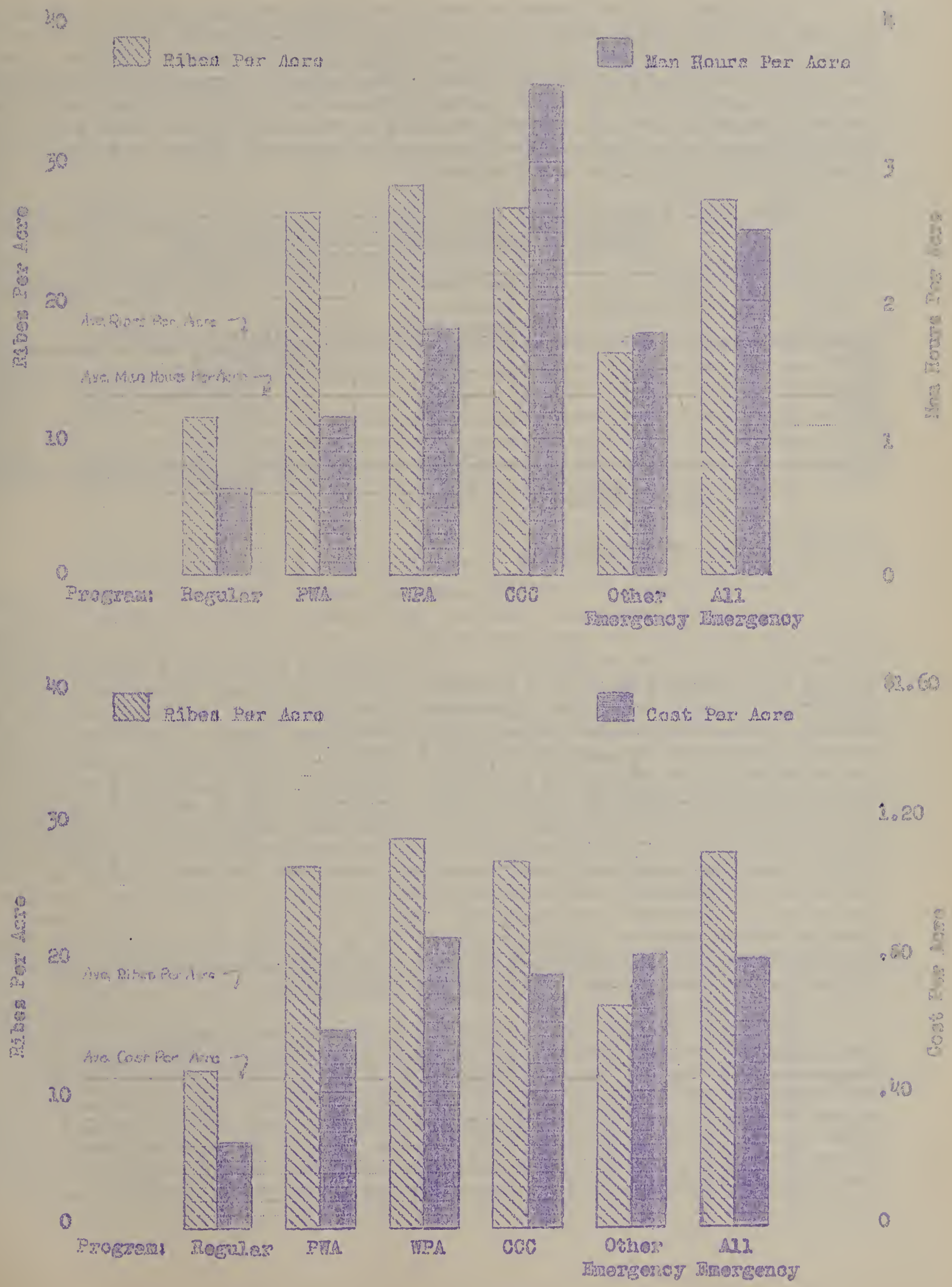


COMPARISON, BY STATES, OF PER ACRE VALUES FOR RIBES ERADICATION WORK
N.P.A. PROGRAM - NORTHEASTERN STATES - 1935 to 1939, INCLUSIVE





COMPARISON, BY PROGRAMS, OF PER ACRE VALUES FOR RIVER EXPLORATION WORK, NORTHEASTERN STATES - 1935 to 1939, INCLUSIVE



Supervision of 1939 W.P.A. Ribes Eradication Work

Due to the limited amount of money available and the necessity of maintaining the 95-5 ratio as regards relief and non-relief employees, no appointed non-relief W.P.A. supervisors were employed during the 1939 season. In most instances, the district blister rust control leaders were able to give adequate supervision to the W.P.A. project, but in New Hampshire, Massachusetts and New York several experienced certified W.P.A. workers assisted in supervising the field work. A few state employees were also assigned to such activities in Maine, New Hampshire, Massachusetts, Connecticut and New York.

Table 45- Supervision of Ribes Eradication Work Performed Under W.P.A. Program in Northeastern States During 1939.

State	No. Supervisors	Man Days Worked By Supervisors	Total Cost of Supervisors		
			State	W.P.A.	Total
Maine	4	387	2,492.78	-	2,492.78
N.H.	3	246½	529.35	770.13	1,299.48
Mass.	2	191½	441.66	609.43	1,051.09
Conn.	1*	25	193.28	-	193.28
N.Y.	16	1129	6,563.86	89.02	6,652.88
Totals	26	1979	10,220.93	1468.58	11,689.51

*State checker

Pine and Control Area Mapping

Up to the advent of the Emergency Programs in 1933, only a limited amount of pre-eradication survey work had been performed in the Northeastern States. During the early years of the control program, the acreage of white pine needing initial protection was so great and its location so evident and general, little mapping was necessary except to indicate the boundaries of the control areas. However, in recent years, the unprotected pine areas have been more isolated and smaller in size with larger proportionate protection zones. Consequently, it became necessary to do detailed mapping in order to locate the pine and to reduce the protection zone acreage to a minimum consistent with effective control. Local funds were available only for Ribes eradication work, while the state appropriations in most instances were so small that their use was confined to the yearly employment of foremen and scouts during the period May to September. The federal money was only sufficient to employ state and district leaders and the activities of these men were necessarily restricted to informational, service, and supervisory activities. The Emergency Programs provided for the first time a force of men to carry on mapping projects during the interval between the Ribes eradication seasons and excellent progress has been made since 1933 in mapping the blister rust control areas in the Northeastern States.

During the period January 1 to April 30 and from November 1 to December 31, 1939, pine and control area mapping was the major project under the W.P.A. Program in this Region. Such activities were conducted in all states, except New Jersey and Rhode Island. The 1939 surveys resulted in 1,703,795 acres being mapped in detail, and the examination and elimination of an additional 2,004,499 acres due to lack of sufficient white pine to justify the cost of control measures. In addition, 800 miles of control area boundary lines were painted in the field. The detailed accomplishments in each state are shown in the following summary.

Table 46 - Summary of Pine and Control Area Mapping Under W.P.A. Program in Northeastern States During 1939

State	No. Towns	Acreage Mapped	Acreage Examined But Not Mapped	Miles Boundary Lines Painted	Total Man Days	Cost				
						Towns	Counties	State	W.P.A.	Total
Me.	45	198,460	660,599	-	5,094	-	-	30.91	19,026.20	[illegible]
N.H.	40	171,672	23,093	-	5,764	145.88	21.88	-	23,609.04	[illegible]
Vt.	55	188,423	824,429	48	3,083	421.70	-	19.60	10,387.69	[illegible]
Mass.	30	138,972	150,002	268	3,285	304.72	-	453.20	12,880.96	[illegible]
Conn.	3	25,212	-	-	593	-	-	-	2,263.59	[illegible]
N.Y.	108	914,306	336,376	-	6,172	-	-	0435.39	20,981.04	[illegible]
Pa.	132	66,750	*	484	2,256	-	-	-	9,729.04	[illegible]
Totals	413	1,703,795	2,004,499	800	26,247	872.30	21.88	6939.40	98,878.46	[illegible]

* In Pennsylvania, several hundred thousand acres of non-pine land were eliminated, but no definite record was kept.

Basis of costs: Includes actual cost of personnel assigned to mapping work, transportation and expenses for mapping equipment.

Table 47 - Summary of Pine and Control Area Mapping Under W. P. A. Program in Northeastern States, 1935-1939, Inclusive.

(By States)

State	Acreage Mapped	Acreage Examined But Not Mapped	Miles Boundary Lines Painted	Total Man Days	Cost				
					Towns & Counties	State	U.S. & P.O.	W.P.A.	Total
Me.	1,469,666	3,882,483	1,720	27,440	-	2,479.31	17.60	108,946.02	111,[illegible]
N.H.	978,695	202,875	-	25,850	843.11	181.14	1.25	111,859.90	112,[illegible]
Vt.	1,235,379	2,887,790	778	16,426	1,405.79	19.60	-	60,177.75	61,603.[illegible]
Mass.	682,095	835,564	1,029	14,542	2,415.10	1,271.45	41.75	62,001.94	65,[illegible]
R.I.	73,427	-	-	362	-	820.25	-	3,443.36	4,[illegible]
Conn.	82,417	131,017	284	3,446	175.00	619.70	420.29	14,635.31	15,[illegible]
N.Y.	2,938,681	864,296	2,399	27,078	-	11,478.10	25.11	116,920.86	128,[illegible]
Pa.	344,506	*	3,087	11,911	-	-	4.00	53,385.49	53,[illegible]
Totals	7,804,866	8,804,030	9,297	127,555	4,837.00	16,869.59	510.00	531,179.61	553,[illegible]

(By Years)

1935	616,026	405,569	1,591	10,937	144.60	1036.64	-	46,959.28	48,[illegible]
1936	2,124,601	2,157,787	4,918	32,701	801.00	3927.90	405.00	155,769.78	156,[illegible]
1937	2,138,073	2,356,582	1,241	30,257	1545.20	1455.10	38.76	129,159.35	132,[illegible]
1938	1,222,371	1,869,593	747	27,413	1652.02	3512.45	36.24	102,432.74	107,[illegible]
1939	1,703,795	2,004,499	800	26,247	894.18	6939.40	-	98,878.46	106,[illegible]
Total	7,204,866	8,804,030	9,297	127,555	4837.00	16,869.59	510.00	531,179.61	553,[illegible]

* A large acreage of non-pine land was also eliminated in Pennsylvania, but no definite record was kept.

Basis of costs: Same as listed for Table 46.

Mapping of Areas Containing Blown-Down Timber - W.P.A. Program

Our Division cooperated with the state and U. S. Forest Service officials in New Hampshire and Vermont during November and December, 1938, and the early part of 1939 by assigning W.P.A. laborers to map the location and extent of the areas containing timber felled by the hurricane of September 21, 1938. This work supplemented similar activities by other agencies. The W.P.A. mapping work in Vermont was restricted to townships along the Connecticut River valley where most of the hurricane damage occurred, while the work in New Hampshire was confined to those sections of the state not mapped by use of autogiros. The special W.P.A. projects in New Hampshire and Vermont assisted the Forest Service materially in completing a survey of the damaged areas. The information obtained is also of great value to our Division in planning future blister rust control work. The disturbance of the duff will permit the stored Ribes seeds to germinate, consequently we may expect a regrowth of such bushes to become a control factor two or three years later. Many areas that we have classed as on a control maintenance basis may revert to conditions similar to those existing at the time of the initial protection work. The pines in New England produced a very heavy seed crop during 1938, consequently reproduction should occur in many of the damaged areas. From a blister rust control viewpoint, we are concerned primarily with pine growth under 30 years of age and such growth was not damaged appreciably by the storm.

Table 48 - Summary of Blown-Down Timber Mapping Conducted Under Federal W.P.A. Program in Northeastern States

Calendar Year 1939

State	No. Towns	Acreage Mapped	Acreage Examined But Not Mapped*	No. Men	Total Man Days	Cost			
						Towns	County	W.P.A.	Total
N.H.	1	897	-	3	18	-	-	66.24	66.24
Vt.	20	37,112	132,975	19	357	-	-	1197.17	1197.17
Totals	21	38,009	132,975	22	375	-	-	1263.41	1263.41

1938 and 1939

N.H.	-	42,396	462,258	-	982	47.92	22.92	4038.76	4109.60
Vt.	-	60,105	459,336	-	933	-	-	3047.21	3047.21
Totals	-	102,501	921,594	-	1,915	47.92	22.92	7085.97	7156.81

* Not sufficient damage to justify mapping.

Nursery Sanitation

W.P.A. employees were used on nursery sanitation work performed in the environs of 9 pine growing nurseries in the Northeastern States during the spring of 1939. This control work assured the continued production of disease-free white pines for use on reforestation projects. A total of 6,383 acres was examined; 1265 wild and 1 cultivated Ribes being removed as a result of 213 man days labor. The accomplishments, by states, are shown in Table 49.

Table 49. - Summary of Nursery Sanitation Work Under W.P.A. Program in Northeastern States During 1939
(All Re-Eradication Work)

State	No. Nurseries Worked	Acreage Worked	Ribes Pulled: Wild	Ribes Pulled: Cult.	Total Man Days	Cost: Indiv.	Cost: State	Cost: W.P.A.	Cost: Total	Per Acre: Cost	Per Acre: Ribes
N.H.	1	110	15	-	1	-	-	4.64	4.64	.042	0.1
Mass.	1	340	285	-	84	-	-	357.27	357.27	1.05	0.8
R.I.	5	2,473	11	-	21	-	-	101.36	101.36	.041	0.01
N.Y.	2	3,460	965	1	107	-	57.60	369.11	426.71	.123	0.3
Totals	9	6,383	1,265	1	213	-	57.60	832.38	889.98	.139	0.2

Basis of costs: Includes cost of laborers and foremen while engaged in locating and eradicating Ribes in nursery sanitation zones, and cost of crew transportation.

Table 50. - Summary of Nursery Sanitation Work Under W.P.A. Program in Northeastern States, 1935-1939, Inclusive

State	Type of Erad.	Acreage Worked	Ribes Pulled: Wild	Ribes Pulled: Cult.	Total Man Days	Cost: Indiv.	Cost: State	Cost: W.P.A.	Cost: Total	Per Acre: Cost	Per Acre: Ribes
N.H.	Re-Erad	396	157	1	124	-	-	424.76	424.76	1.07	0.4
Vt.	Re-Erad	380	257	75	75	-	24.00	218.27	242.27	.638	0.7
Mass.	Re-Erad	1,462	2,626	3	406	-	471.43	1495.75	1,967.18	1.33	1.7
R.I.	Initial	590	27	45	9	-	-	46.50	46.50	.079	0.04
	Re-Erad	5,374	54	2	70	-	-	318.42	318.42	.059	0.01
	Total	5,964	81	47	79	-	-	364.92	364.92	.061	0.01
Conn.	Re-Erad	932	53	8	73	-	-	171.59	171.59	.184	0.06
N.Y.	Re-Erad	12,290	4,287	2	589	-	367.36	2015.52	2,382.88	.194	0.3
Pa.	Re-Erad	1,690	3,110	28	207	307.50	-	836.29	1,143.79	.677	1.8
Totals	Initial	590	27	45	9	-	-	46.50	46.50	.079	0.04
	Re-Erad	22,544	10,444	119	1524	307.50	862.79	5480.60	6,650.89	.295	0.5
	Total	23,134	10,471	164	1533	307.50	862.79	5527.10	6,697.39	.290	0.5

Basis of costs: Same as listed for Table 49.

Elimination of Ribes Nigrum (European Black Currant)

Special Ribes nigrum elimination work under the W.P.A. Program during 1939 was limited to Massachusetts and New York, the work in the former state being a continuation of the recheck started in 1938. Twenty-eight townships in Bristol, Plymouth, and Norfolk Counties in Massachusetts were checked during the current year, and the results of the 1938 and 1939 work indicate that complete elimination of Ribes nigrum cannot be accomplished without such re-surveys. However, no bushes were found in eight of the townships checked in 1939. The results of the 1939 work in Massachusetts and New York and the accomplishments during the period 1935-1939, inclusive, are shown in Table 51.

Table 51 - Summary of Special Ribes Nigrum Elimination Work Under W.P.A. Program in Northeastern States, 1935-1939, Inclusive

State		Mass.		N.Y.		Totals	
Period		1939	1935-39	1939	1935-39	1939	1935-39
No. townships in which work done		28	-	11	11	39	-
No. properties inspected		67,641	151,648	3,117	3,117	70,768	154,765
No. patches located		213	823	25	25	238	848
No. Ribes Located	Nigrum	840	3,918	128	128	968	4,046
	Other Cult.	-	585	-	-	-	585
No. Ribes Pulled	Nigrum	625	2,657	128	128	753	2,785
	Other Cult.	-	413	-	-	-	413
Total man days		287	840	103	103	390	943
Cost	Individuals	181.60	427.70	-	-	181.60	427.70
	State	12.84	12.84	244.80	244.80	257.64	257.64
	W.P.A.	1187.71	3,952.66	182.60	182.60	1370.31	4,136.26
	Total	1382.15	4,393.20	427.40	427.40	1809.55	4,820.60

Blister Rust Canker Elimination

During 1939, relief labor was used on blister rust canker elimination work in three of the Northeastern States. Such activities were confined to publicly-owned white pine plantations containing at least 20% infection on trees under 25 feet in height. In some instances, the trees were pruned to about half their height, as experience has shown that it is more practical to follow this procedure, especially with inexperienced labor, than to search for and destroy the individual blister rust cankers on the lower branches. The results of the 1939 canker elimination work and the totals for the entire W.P.A. Program are shown in Tables 52 and 53.

Table 52- Blister Rust Canker Elimination Work Under W.P.A. Program in Northeastern States During 1939.

State	No. Towns	Est. No. Pines Examined	No. Fatally Infected Pines Cut Down	No. Pines From Which Cankers Removed	No. Cankers Removed		Total Man Days	Cost			
					Branch	Stem		Towns	State	W.P.A.	Total
Mass.	2	14,158	3,068	318	324	-	521	1892.00	-	214.49	2106.49
N.Y.	5	122,206	1,500	11,722	16,029	696	1361	-	278.44	5196.69	5475.13
Penna.	2	84,650	80	12,216	17,821	21	515	-	-	1908.07	1908.07
Totals	9	221,014	4,648	24,256	34,174	717	2397	1892.00	278.44	7319.25	9489.69

Basis of costs: Includes cost of personnel assigned to canker elimination work, crew transportation, and cost of equipment and supplies.

Table 53 - Blister Rust Canker Elimination Work Under W.P.A. Program in Northeastern States, 1935-1939, Inclusive.

State	Est. No. Pines Examined	No. Fatally Infected Pines Cut Down	No. Pines From Which Cankers Removed	No. Cankers Removed		Total Man Days	Cost			
				Branch	Stem		Local Coop.	State	W.P.A.	Total
N.H.	28,581	5,731	638	711	-	219	-	-	779.37	779.37
Vt.	190,369	37,161	17,213	18,932	213	2,073	405.00	20.50	6176.91	6602.41
Mass.	103,450	13,653	3,426	3,837	-	2,736	3129.00	67.98	7938.94	11.135.92
N.Y.	1,470,670	145,758	187,981	250,066	1386	11,619	240.00	1580.26	45477.02	47,297.28
Pa.	296,602	4,254	45,669	96,771	1707	2,440	-	-	9984.06	9,984.06
Total	2,089,672	206,557	254,927	370,317	3306	19,087	3774.00	1668.74	70356.30	75,799.04

Basis of costs: Same as listed for Table 52.

Special Field Studies

Pine Infection Studies

W.P.A. laborers were used during the fall of 1937 in five of the Northeastern States (Maine, New Hampshire, Vermont, Massachusetts and New York) to assist in examining white pines in protected and unprotected areas to determine the amount of pine infection and the effectiveness of blister rust control work.

The white pines in 91 plots, aggregating 87½ acres, were examined in protected areas in 58 townships in five states. These plots contained 66,713 white pines, of which 11,653, or 17.5% were infected with 15,567 blister rust cankers. Even though the protection work had been conducted 3 to 16 years prior to 1937, and had been performed chiefly by owners' labor, only 8.7 percent of the diseased pines became infected for the first time after the application of control measures. The studies show that ordinary Ribes eradication work has been effective in controlling the rust but that reworking of areas for Ribes should not be delayed too long if protection is to be maintained effectively. (Areas should be inspected at intervals of about five years to ascertain if Ribes regrowth is a menace to the pines).

In the unprotected areas studied during 1937, a total of 88 plots, comprising 85¼ acres, were laid out in 61 townships in five of the Northeastern States. Out of a total of 68,829 pines examined, 14,132, or 20.5% of the trees were infected with 23,108 blister rust cankers. Over 54% of these cankers originated after 1930, which shows the danger of delaying protection measures.

State and Local Cooperation on W.P.A. Program

The states and local cooperators continued to give good support to the W.P.A. projects in this Region during 1939, as evidenced by a total expenditure of $45,003.38 to supplement the W.P.A. funds. This amount includes contributions by six states, one county, 43 towns, and 249 individuals.

State funds were used chiefly for field supervision and checking, crew foremen, transportation, and a small amount for equipment. The county and town expenditures were mainly for transportation of W.P.A. crews. In several instances, the continuance of the W.P.A. control projects in these localities depended primarily on this cooperation, as adequate W.P.A. funds were not available for transportation. Cooperation by private land owners under the W.P.A. Program represents the cost of additional labor furnished by these individuals.

Tables 54 and 55 show the amount of state and local cooperative funds spent in conjunction with the W.P.A. Program during 1939 and the period 1935-1939, inclusive.

Table 54 - State and Local Cooperative Funds Spent in Conjunction With W.P.A. Program in Northeastern States During 1939

State	State Funds	County Funds		Town Funds		Individual Funds		Total
		No. Counties	Amount	No. Towns	Amount	No. Indiv.	Amount	
Maine	3,281.76	-	-	26	4,296.61	1	24.15	7,602.52
N.H.	595.24	1	69.94	2	263.94	-	-	929.12
Vt.	19.60	-	-	9	2,365.46	-	-	2,385.06
Mass.	2,251.19	-	-	6	3,862.89	248	276.00	6,390.08
Conn.	193.28	-	-	-	-	-	-	193.28
N.Y.	27,503.32	-	-	-	-	-	-	27,503.32
Totals	33,844.39	1	69.94	43	10,788.90	249	300.15	45,003.38

Table 55 - State and Local Cooperative Funds Spent in Conjunction With W.P.A. Program in Northeastern States, 1935-1939, Inclusive

State	State Funds	County Funds		Town Funds		Indiv. Funds		Total
		No. County Contributions	Amount	No. Town Contributions	Amount	No. Indiv.	Amount	
Me.	11,983.40	-	-	56	7,831.08	3	44.40	19,858.88
N.H.	2,654.18	6	1,724.08	20	1,591.44	-	-	5,969.70
Vt.	487.50	-	-	42	17,950.89	-	-	18,438.39
Mass.	8,496.28	-	-	30	16,086.24	629	2.174.86	26,757.38
R.I.	1,114.98	-	-	-	-	-	-	1,114.98
Conn.	1,719.21	-	-	2	851.00	1	8.00	2,578.21
N.Y.	124,677.66	2	336.00	-	-	2	254.40	125,268.06
N.J.	941.86	-	-	-	-	-	-	941.86
Pa.	336.70	-	-	-	-	5	307.50	644.20
Totals	152,411.77	8	2,060.08	150	44,310.65	640	2,789.16	201,571.66

Table 56 - W.P.A. Project Funds Allotted For Blister Rust Control in Northeastern States, 1935-1939, Inclusive

Appropriation 001089

State	Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	N.J.	Penna.	Totals
Original allotment(1)	255,262.00	250,587.00	151,283.00	157,669.00	20,212.00	51,127.00	421,804.00	2958.00	200,749.00	1,511,651.00
Recission-6/10/36	31,500.00	35,000.00	22,500.00	20,000.00	3,000.00	6,000.00	56,500.00	-	32,000.00	206,500.00
Increase-7/8/36	26,000.00	18,500.00	13,000.00	13,000.00	2,000.00	3,500.00	37,000.00	1000.00	18,000.00	132,000.00
Recission-10/20/37	199.51	199.56	98.28	400.00	54.48	100.68	174.31	64.51	75.59	1,366.93
Recission-9/15/38	-	-	-	.03	-	.05	.35	-	-	.43
Increase-6/23/39	-	-	4.95	-	-	-	-	-	30.84	35.79
Total Funds-001089	249,562.49	233,887.44	141,689.67	150,268.97	19,157.52	48,526.27	402,129.34	3893.49	186,704.25	1,435,819.45

Appropriation 201085

Original allotment(2)	53,600.00	34,100.00	16,200.00	23,500.00	4,500.00	2,300.00	91,700.00	800.00	24,500.00	251,200.00
Increase-8/24/36	-	25,300.00	10,000.00	-	-	-	25,000.00	-	7,500.00	67,800.00
Recission-8/24/36	3,300.00	-	-	-	-	1,600.00	-	-	-	4,900.00
Increase-9/15/36	46,500.00	52,600.00	33,200.00	30,000.00	2,900.00	7,000.00	69,000.00	600.00	37,000.00	278,800.00
Increase-11/27/36	-	-	-	5,000.00	1,000.00	1,000.00	10,000.00	-	1,000.00	18,000.00
Recission-11/27/36	-	14,000.00	3,000.00	-	-	-	-	-	-	17,000.00
Recission-12/31/36	-	-	3,340.00	-	-	-	4,000.00	-	-	7,340.00
Increase-1/4/37	-	-	-	-	-	310.00	-	-	-	310.00
Increase-1/15/37	-	-	3,000.00	-	-	-	-	-	-	3,000.00
Recission-1/15/37	-	-	-	-	-	-	-	-	3,000.00	3,000.00
Increase-2/13/37	8,100.00	5,600.00	4,400.00	2,100.00	-	900.00	16,920.00	-	4,000.00	42,020.00
Increase-3/8/37	9,510.00	9,400.00	7,750.00	11,730.00	430.00	1,550.00	17,750.00	140.00	6,740.00	65,000.00
Increase-5/12/37	10,690.00	10,020.00	6,240.00	5,820.00	430.00	1,250.00	14,960.00	140.00	5,450.00	55,000.00
Recission-10/12/37	2,000.00	2,200.00	2,800.00	4,100.00	60.00	825.00	3,500.00	75.00	3,800.00	19,360.00
Recission-7/27/38	312.00	155.00	243.00	487.00	-	118.00	468.00	-	273.00	2,054.00
Recission-6/30/39	54.79	50.68	57.93	53.88	7.39	51.22	60.67	11.32	86.59	434.47
Total Funds-201085	122,733.21	120,616.32	71,349.07	73,509.12	9,192.61	11,715.78	237,301.33	1593.68	79,030.41	727,041.53

Appropriation 501082

Original allotment(3)	59,720.00	41,370.00	28,610.00	39,550.00	1,550.00	4,130.00	76,120.00	1580.00	29,740.00	282,370.00
Increase-10/1/37	-	-	-	-	-	-	-	250.00	-	250.00
Recission-10/1/37	-	-	-	250.00	-	-	-	-	-	250.00
Recission-11/10/37	-	-	-	1,000.00	-	-	-	-	-	1,000.00
Increase-11/10/37	-	-	-	-	-	-	1,000.00	-	-	1,000.00
Increase-12/6/37	-	-	1,000.00	-	-	-	-	-	-	1,000.00
Recission-12/6/37	-	-	-	-	-	-	-	-	1,000.00	1,000.00
Recission-12/17/37	-	200.00	-	100.00	-	-	200.00	-	1,400.00	1,900.00
Increase-12/17/37	-	-	1,900.00	-	-	-	-	-	-	1,900.00
Increase-1/7/38	34,958.00	27,891.00	17,475.00	24,440.00	1,098.00	5,140.00	56,783.00	1080.00	18,134.00	177,000.00
Recission-5/28/38	-	-	-	-	-	-	-	1080.00	-	1,080.00
Increase-6/28/38	-	-	-	500.00	500.00	-	-	-	-	1,000.00
Total Funds-501082	24,762.00	13,679.00	11,035.00	15,440.00	1,950.00	9,270.00	20,703.00	1810.00	10,474.00	129,125.00

(1) July 28, 1936. (2) July 25, 1936. (3) July 10, 1937.

W.P.A. Project Funds Allotted For Blister Rust Control in Northeastern States, 1935-1939, Inclusive (Continued)

Appropriation 701082

State	Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	N.J.	Penna.	Totals
Original Allotment	10,308.00	9,493.00	6,010.00	11,246.00	928.00	1,383.00	16,838.00	-	7,310.00	63,516.00
Increase-8/16/38	41,250.00	42,400.00	27,398.00	45,308.00	1,856.00	7,358.00	75,385.00	-	29,963.00	270,918.00
Increase-3/17/39	28,207.00	29,200.00	19,271.00	35,181.00	2,412.00	5,452.00	52,554.00	-	22,323.00	194,600.00
Total Funds-701082	79,765.00	81,093.00	52,679.00	91,735.00	5,196.00	14,193.00	144,777.00	-	59,596.00	529,034.00

Appropriation 201087

Original Allotment	20,490.00	21,020.00	13,490.00	11,000.00	1,500.00	-	20,000.00	-	14,270.00	101,770.00
Rescission-7/29/39	8,000.00	6,000.00	4,000.00	-	-	-	-	-	6,000.00	24,000.00
Increase-8/16/39	18,353.00	17,498.00	8,570.00	13,571.00	2,200.00	-	31,261.00	-	9,498.00	100,951.00
Increase-10/11/39	5,000.00	3,666.00	3,200.00	4,256.00	-	-	7,734.00	-	3,166.00	27,022.00
Increase-11/8/39	-	-	1,600.00	1,424.00	-	-	1,000.00	-	2,000.00	6,024.00
Increase-11/24/39	1,000.00	2,000.00	1,000.00	1,520.00	-	-	3,500.00	-	1,000.00	10,020.00
Increase-11/28/39	-	100.00	-	-	1,000.00	-	-	-	-	1,100.00
Increase-12/6/39	-	-	3,000.00	-	-	-	3,200.00	-	-	6,200.00
Increase-1/3/40	3,000.00	5,000.00	2,000.00	3,000.00	-	-	3,800.00	-	2,000.00	18,800.00
Increase-1/24/40	2,000.00	2,000.00	2,000.00	2,000.00	-	-	3,000.00	-	2,000.00	13,000.00
Increase-2/19/40	1,500.00	1,500.00	1,500.00	1,500.00	-	-	1,500.00	-	1,500.00	9,000.00
Total Funds-201087	43,343.00	46,784.00	32,360.00	38,271.00	4,700.00	-	74,995.00	-	29,434.00	269,887.00

Recapitulation

001089	249,562.49	233,887.44	141,689.67	150,268.97	19157.52	48,526.27	402,129.34	389349	186704.25	1435,819.45
201085	122,733.21	120,616.32	71,349.07	73,509.12	9192.61	11,715.78	237,301.33	159368	79030.41	727,041.05
501082	64,678.00	69,061.00	48,983.00	65,130.00	3228.00	9,270.00	133,706.00	184000	45474.00	439,570.00
701082	79,765.00	81,093.00	52,679.00	91,735.00	5196.00	14,193.00	144,777.00	-	59596.00	529,034.00
201087	43,343.00	46,784.00	32,360.00	38,271.00	4700.00	-	74,995.00	-	29434.00	269,887.00
Totals	560,081.70	551,441.76	347,060.74	416,914.09	41474.13	83,705.05	992,908.67	732717	400238.66	3401,151.97

W.P.A. Administrative Allotments in Northeastern States

(1937-1939, Inclusive)

Fiscal Year	Appropriation Number	Amount
1937	501099	$5,340.00
1938	01-06/6999	3,600.00
1938	701089 (Original allotment).....	285.00
1938	701089 (Increase on 7/26/38)....	285.00
1938	701009 (Original allotment)	1,870.00
1938	701009 (Increase on 9/20/38)....	1,900.00
1938	701009 (Increase on 3/10/39)....	250.00
1938	701009 (Increase on 3/29/39)....	3,160.00
1939	201088 (Original allotment)	2,000.00
1939	201088 (Decrease on 7/25/39)....	388.00
1939	201088 (Increase on 8/17/39)....	4,512.00
1939	201088 (Increase on 10/11/39)...	586.00
1939	201088 (Increase on 11/22/39)...	100.00
1939	201088 (Increase on 12/6/39) ...	250.00
1939	201088 (Increase on 1/3/40)....	256.00
1939	201088 (Increase on 1/24/40....	300.00
1939	201088 (Increase on 2/19/40....	400.00
Total of all administrative allotments		$25,206.00

Table 57- Total W.P.A. Expenditures During Calendar Year 1939 For The Various Blister Rust Control Projects in The Northeastern States.

State	Supervision And B.E.C. Agent Activites	Eradication Assistants and Checkers	Ribes Eradication	Black Currant Elimination	Nursery Sanitation	Blister Rust Canker Elimination	Field Data		Totals
							Mapping	General	
Maine	9,004.89	-	40,551.28	-	-	-	19,026.20	-	68,582.37
N.H.	10,554.29	770.13	37,135.20	-	4.64	-	23,609.94	66.24	72,140.44
Vt.	7,204.06	-	27,073.23	-	-	-	10,387.69	1197.17	45,862.15
Mass.	8,196.66	609.43	40,163.53	1187.71	357.27	214.49	12,880.96	-	63,610.05
R.I.	509.55	-	4,979.22	-	101.36	-	-	-	5,590.13
Conn.	1,296.33	-	3,417.35	-	-	-	2,263.59	-	6,977.27
N. Y.	18,706.50	89.02	68,429.95	182.60	369.11	5,196.69	20,961.04	10,442.00	124,396.91
N. J.	-	-	-	-	-	-	-	-	-
Penna.	8,223.71	-	28,859.72	-	-	1,908.07	9,729.04	-	48,720.54
Totals	63,695.99	1468.58	250,609.48	1370.31	832.38	7,319.25	98,878.46	11,705.41	435,879.86

In addition to the expenditures listed in Table 57, W.P.A. oblications for the Cambridge, Massachusetts regional office during the calendar year 1939 were as follows:

Source of Funds	Wages of Relief Labor	Salaries of Appointees	Total Expenses	Total
Massachusetts allotment.....	$7,060.46	0	$2,777.13	$9,837.59
Administrative allotment	0	$6,033.21	2,121.31	8,154.52
Totals.....	$7,060.46	$6,033.21	$4,898.44	$17,992.11

Table 58 - Total W.P.A. Expenditures For The Various Blister Rust Control Projects in The Northeastern States During Period 1935-1939, Inclusive
(By States)

State	Supervision and B.R.C. Agent Activities	Eradication Assistants and Checkers	Ribes Eradication	Black Currant Elimination	Nursery Sanitation	Blister Rust Canker Elimination	Field Data		Total
							Mapping	General	
Maine	45,454.14	19,914.38	370,270.97(1)	-	-	-	108,946.02	2,257.51	546,843.02
N.H.	50,557.24	19,500.56	338,582.60	-	484.76	779.37	111,669.90	13,774.40	535,288.83
Vt.	36,691.22	12,371.02	210,249.11	-	218.27	6,176.91	60,177.75	8,297.11	334,181.39
Mass.	37,800.09	7,791.00(2)	217,322.38	3,952.66	1,495.75	7,938.94	62,001.94	2,893.87	341,196.63
R.I.	2,710.78(3)	-	33,372.78	-	364.92	-	3,443.36	-	39,891.84
Conn.	7,356.40	2,383.15	55,234.80	-	171.59	-	14,633.31	3,374.74	83,155.99
N.Y.	93,346.92	22,418.93(4)	663,228.20(5)	182.60	2,015.52	46,477.02	116,920.86	24,631.13	968,221.18
N.J.	818.46	991.25	5,493.66	-	-	-	-	-	7,303.37
Penna.	38,949.16	15,953.23	270,725.17	-	836.29	9,984.06	53,386.49	-	389,834.40
Totals	313,684.41	101,323.52	2,164,479.67	4,135.26	5,527.10	70,356.30	531,179.61	55,228.76	3,245,914.63

(1) Includes $38.03 W.P.A. funds expended under Regular Cooperative Program.
(2) Includes $948.45 W.P.A. funds expended under C.C.C. Program.
(3) Includes $61.11 expended out of Cambridge Office administrative allotment.
(4) Includes $300.80 W.P.A. funds expended under C.C.C. Program and $269.78 under S.C.S. Program.
(5) Includes $245.76 W.P.A. funds expended under S.C.S. Program.

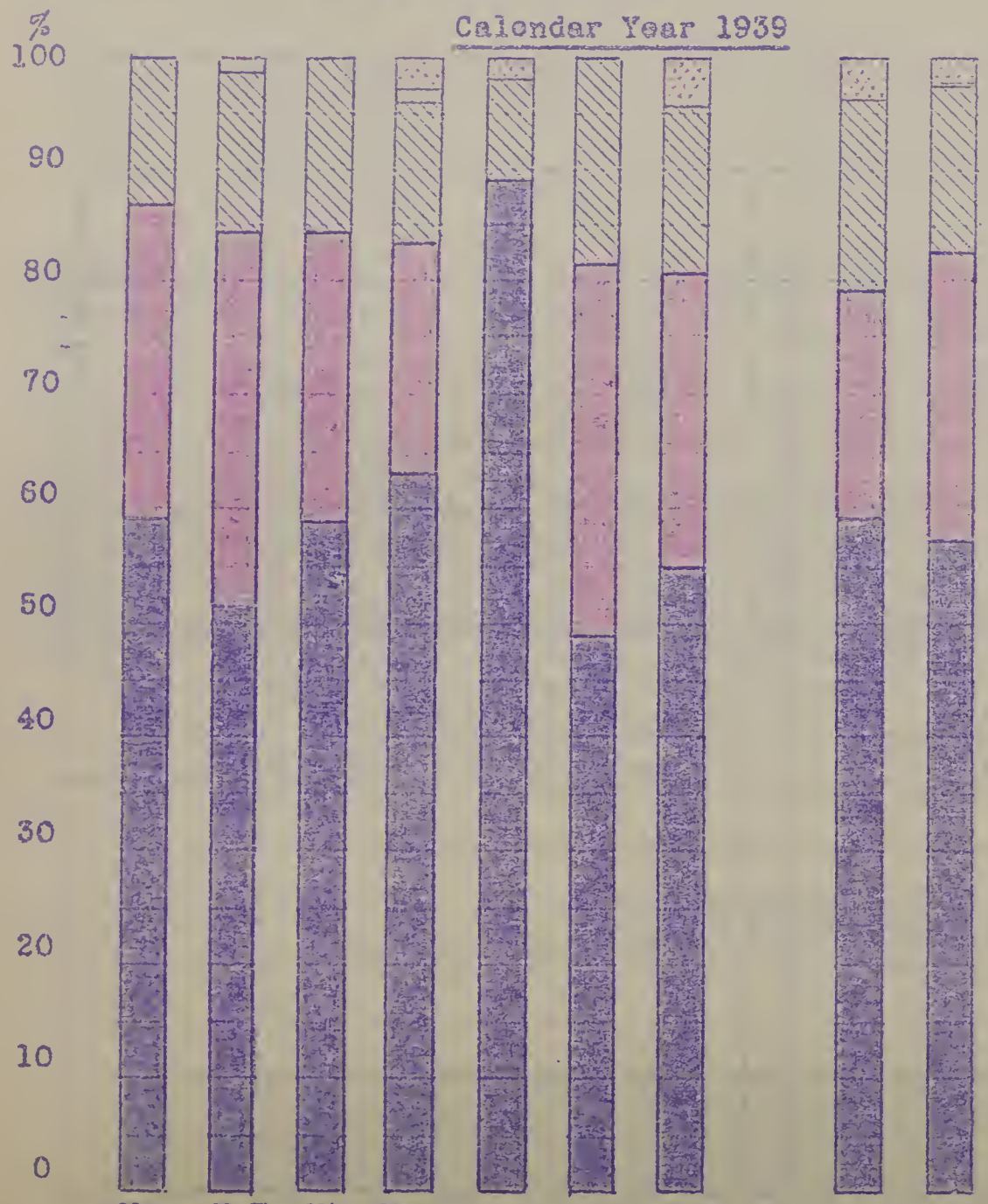
In addition to the expenditures listed in Table 58, W.P.A. obligations for the Cambridge, Massachusetts regional office during the period 1935-1939, inclusive, were as follows:

Source of Funds	Wages of Relief Labor	Wages of Non-Relief Labor	Salaries of Appointees	Total Expenses	Total
Massachusetts allotments.....	$40,657.99	$72.25	$8,065.91	$13,512.48	$62,308.63
Administrative allotments....	0	0	14,380.53	5,798.36	20,178.89
Totals.....	$40,657.99	372.25	322,446.44	$19,310.84	$82,487.52

PERCENTAGE OF TOTAL W.P.A. EXPENDITURES IN RESPECTIVE NORTHEASTERN STATES PAID FOR EACH PROJECT

LEGEND

- Black Currant Elimination - Nursery Sanitation - Blister Rust Canker Elimination
- Eradication Assistants and Checkers
- General Supervision and Blister Rust Control Agent Activities
- Field Data (Pre-eradication surveys and plot studies)
- Ribes Eradication



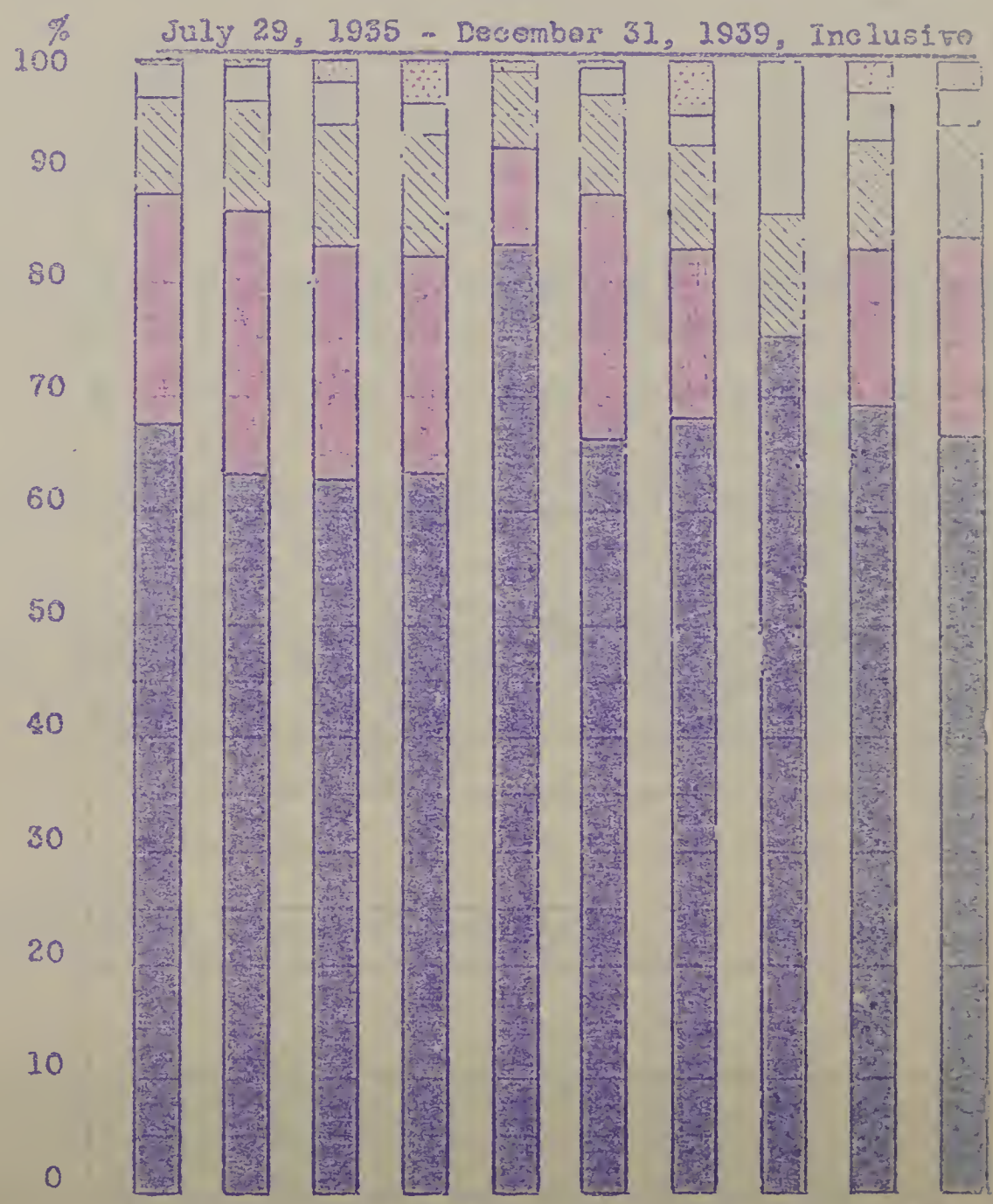


Table 59 - Total Expenditures, By Cooperating Agencies, Under W.P.A. Program in Northeastern States During Calendar Year 1939

State	State Funds	Towns	Individuals	Counties	W.P.A.	Totals
Maine	3,281.76	4,296.61	24.15	-	68,582.37	76,184.89
N.H.	595.24	263.94	-	69.94	72,140.44	73,069.56
Vt.	19.60	2,365.46	-	-	45,862.15	48,247.21
Mass.	2,251.19	3,862.89	276.00	-	63,610.05	70,000.13
R.I.	-	-	-	-	5,590.13	5,590.13
Conn.	193.28	-	-	-	6,977.27	7,170.55
N.Y.	27,503.32	-	-	-	124,396.91	151,900.23
Penna.	-	-	-	-	48,720.54	48,720.54
Totals	33,844.39	10,788.90	300.15	69.94	435,879.86	480,883.24

Table 60 - Total Cooperative Expenditures, By Projects, Under W.P.A. Program in Northeastern States During Calendar Year 1939.

State	Supervision and B.R.C. Agent Activities	Ribes Eradication	Erad. Assistants and Checkers	Black Currant Elimination	Nursery Sanitation	Blister Rust Canker Elimination	Field Data		Total
							Mapping	General	
Maine	9,004.89	45,630.11	2,492.78	-	-	-	19,057.11	-	76,184.89
N.H.	10,554.29	37,367.21	1,299.48	-	4.64	-	23,777.70	66.24	73,069.56
Vt.	7,204.06	29,016.99	-	-	-	-	10,828.99	1,197.17	48,247.21
Mass.	8,196.66	43,267.59	1,051.09	1,382.15	557.27	2,106.49	13,638.88	-	70,000.13
R.I.	509.55	4,979.22	-	-	101.36	-	-	-	5,590.13
Conn.	1,296.33	3,417.35	193.28	-	-	-	2,265.59	-	7,170.55
N.Y.	18,706.50	80,802.37	6,652.88	427.40	426.71	5,475.13	27,416.73	11,992.51	151,900.23
Penna.	8,223.71	28,959.72	-	-	-	1,908.07	9,729.04	-	48,720.54
Totals	63,695.99	275,340.56	11,689.51	1,809.55	889.98	9,489.69	106,712.04	13,255.92	480,883.24

In addition to the expenditures listed above, W.P.A. obligations for the Cambridge, Massachusetts regional office during the calendar year 1939 amounted to $17,992.11. Out of this total, $9,837.59 was derived from the Massachusetts field allotments, while $8,154.52 was expended from W.P.A. administrative funds.

Table 61 — Total Expenditures, By Cooperating Agencies, Under W.P.A. Program in Northeastern States During Period 1935-1939, Inclusive

State	State Funds	Towns	Individuals	Counties	B.E. & P.Q.	W.P.A.	Total
Maine	11,983.40	7,831.08	44.40	-	17.60	546,804.99(1)	566,681.47
N.H.	2,654.18	1,591.44	-	1,724.08	205.90	535,288.83	541,464.43
Vt.	487.50	17,950.89	-	-	-	334,181.37	352,619.76
Mass.	8,496.28	16,086.24	2,174.86	-	50.28	340,248.18(2)	367,055.84
R.I.	1,114.98	-	-	-	-	39,891.84(3)	41,006.82
Conn.	1,719.21	851.00	8.00	-	690.29	83,153.99	86,422.49
N.Y.	124,677.66	-	254.40	336.00	25.11	967,404.84(4)	1,092,698.01
N.J.	941.86	-	-	-	-	7,303.37	8,245.23
Penna.	336.70	-	307.50	-	4.00	389,834.40	390,482.60
Totals	152,411.77	44,310.65	2,789.16	2,060.08	993.18	3,244,111.81	3,446,676.65

(1) In addition, $38.03 W.P.A. funds were expended in conjunction with Regular Cooperative Program.
(2) In addition, $948.45 W.P.A. funds were expended in conjunction with C.C.C. Program.
(3) Includes $61.11 expended for state leader's salary out of Cambridge Office W.P.A. administrative allotment.
(4) In addition, $300.80 W.P.A. funds were expended in conjunction with C.C.C. Program and $515.54 with S.C.S. Program.

Table 62 - Total Cooperative Expenditures, By Projects, Under W.P.A. Program in Northeastern States During Period 1935-1939, Inclusive.

State	Supervision and B.R.C. Agent Activities	Ribes Eradication	Eradication Assistants and Checkers	Black Currant Elimination	Nursery Sanitation	Ribes Compensation	Blister Rust Canker Elimination	Field Data		Total
								Mapping	General	
Maine	45,454.14	382,845.51	24,681.34	-	-	-	-	111,442.97	2,257.51	566,681.47
N.H.	50,557.24	341,323.54	21,818.06	-	424.76	-	779.37	112,695.40	13,866.06	541,464.43
Vt.	36,691.22	226,152.55	12,491.08	-	242.27	-	6,602.41	61,603.12	8,837.11	352,619.76
Mass.	37,800.09	235,492.83	7,284.21	4,393.20	1,967.18	225.60	11,135.92	65,728.24	3,028.57	367,055.84
R.I.	2,710.78	33,667.51	-	-	364.92	-	-	4,263.61	-	41,006.82
Conn.	7,356.40	55,984.33	2,976.38	-	171.59	-	-	15,848.30	4,085.49	86,422.49
N.Y.	93,346.92	742,964.36	46,196.09	427.40	2,382.88	-	47,297.28	128,424.07	31,659.01	1,092,698.01
N.J.	818.46	5,791.76	1,635.01	-	-	-	-	-	-	8,245.23
Penna.	38,949.16	271,061.87	15,953.23	-	1,143.79	-	9,984.06	53,390.49	-	390,482.60
Totals	313,684.41	2,295,284.26	133,035.40	4,820.60	6,697.39	225.60	75,799.04	553,396.20	63,733.75	3,446,676.65

In addition to the expenditures listed above, W.P.A. obligations for the Cambridge, Massachusetts regional office during the period 1935-1939, inclusive, amounted to $82,487.52. Of this total, $62,308.63 was derived from the Massachusetts field allotments, while $20,178.89 was expended from W.P.A. administrative allotments.

Table 63 - W.P.A. Obligations For Salaries and Wages

Calendar Year 1939

State	Wages of Security-Wage Workers		Salaries of Appointees	Total Wages and Salaries
	Relief	Non-Relief		
Maine	56,910.05	-	5,849.82	62,759.87
N. H.	59,433.54	-	7,953.08	67,386.62
Vt.	37,600.19	504.10	5,199.84	43,304.13
Mass.	54,544.94	187.00	5,849.82	60,581.76
R. I.	5,056.76	-	499.98	5,556.74
Conn.	5,858.39	-	610.00	6,468.39
N. Y.	104,550.86	-	12,049.64	116,600.50
N. J.	-	-	-	-
Penna.	40,152.76	333.51	5,199.84	45,686.11
Totals	363,907.49	1,024.61	43,412.02	408,344.12
% of Total	89.1	0.3	10.6	100.0

July 29, 1935 to December 31, 1939

Maine	429,681.98	29,265.96	46,277.98	505,225.92
N. H.	402,277.19	49,441.01	53,152.45	504,870.65
Vt.	265,529.30	14,848.52	32,801.15	313,178.97
Mass.	287,474.55	5,766.32	35,590.80	328,831.67
R. I.	34,223.07	2,427.54	2,614.34 (1)	39,264.95
Conn.	68,930.56	1,195.93	5,971.50	76,100.99
N. Y.	845,302.33	27,456.07	94,642.18	967,400.58
N. J.	5,441.91	-	1,548.71	6,990.62
Penna.	316,437.10	11,932.48	39,143.39	367,512.97
Totals	2,625,297.99	142,336.83	311,772.50	3,079,407.32
% of Total	85.3	4.6	10.1	100.0

(1) Includes $61.11 paid out of Cambridge Office administrative allotment.

In addition to the expenditures listed above, W.P.A. obligations for the Cambridge, Massachusetts regional office were as follows:

Source of Funds	Period	Wages of Security Wage Workers: Relief	Wages of Security Wage Workers: Non-Relief	Salaries of Appointees	Total
Massachusetts Allotment	(Calendar Year (1939.....	7,060.46	0	0	7,060.46
	(7/29/35-12/31/39..	40,657.99	72.25	8,065.91	48,796.15
Administrative Allotment	(Calendar Year (1939.....	0	0	6,033.21	6,033.21
	(7/29/35-12/31/39..	0	0	14,380.53	14,380.53
Totals	(Calendar Year (1939.....	7,060.46	0	6,033.21	13,093.67
	(7/29/35-12/31/39..	40,657.99	72.25	22,446.44	63,176.68

Table 64 - W.P.A. Obligations For Expenses

Calendar Year 1939

State	Purchases	Travel		Total
		Appointees	Crew Transportation	
Maine	3,811.58	1,064.29	946.63	5,822.50
N. H.	2,547.09	510.43	1,696.30	4,753.82
Vt.	2,111.27	437.95	8.80	2,558.02
Mass.	2,743.77	284.52	-	3,028.29
R. I.	2.80	7.87	22.72	33.39
Conn.	327.03	181.85	-	508.88
N. Y.	5,940.25	1,437.84	418.32	7,796.41
Penna.	1,575.37	905.30	553.76	3,034.43
Totals	19,059.16	4,830.05	3,646.53	27,535.74
% Totals	69.2	17.6	13.2	100.0

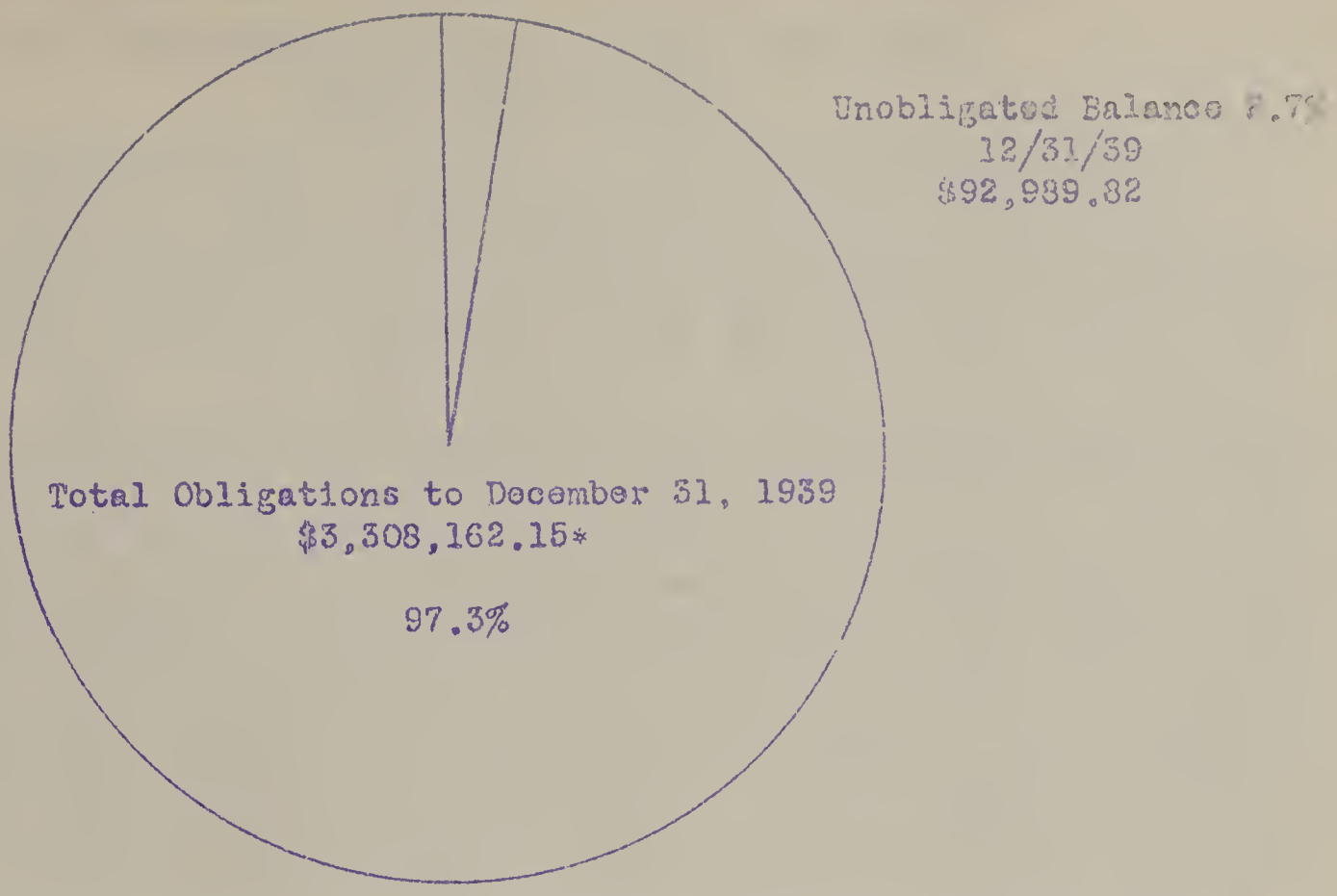
July 29, 1935 to December 31, 1939

State	Purchases	Travel		Total
		Appointees	Crew Transportation	
Maine	15,999.07	9,390.59	16,227.44	41,617.10
N. H.	9,624.54	6,332.26	14,451.36	30,408.16
Vt.	11,231.89	6,148.84	3,621.67	21,002.40
Mass.	9,594.28	2,449.04	351.64	12,364.96
R. I.	31.56	8.37	556.96	596.89
Conn.	3,350.29	2,312.53	1,390.18	7,053.00
N. Y.	20,543.59	6,299.36	3,977.65	30,820.60
N. J.	131.23	181.52	-	312.75
Penna.	8,564.91	6,036.28	7,720.24	22,321.43
Totals	79,071.36	39,128.79	48,307.16	166,507.31
% Total	47.5	23.5	29.0	100.0

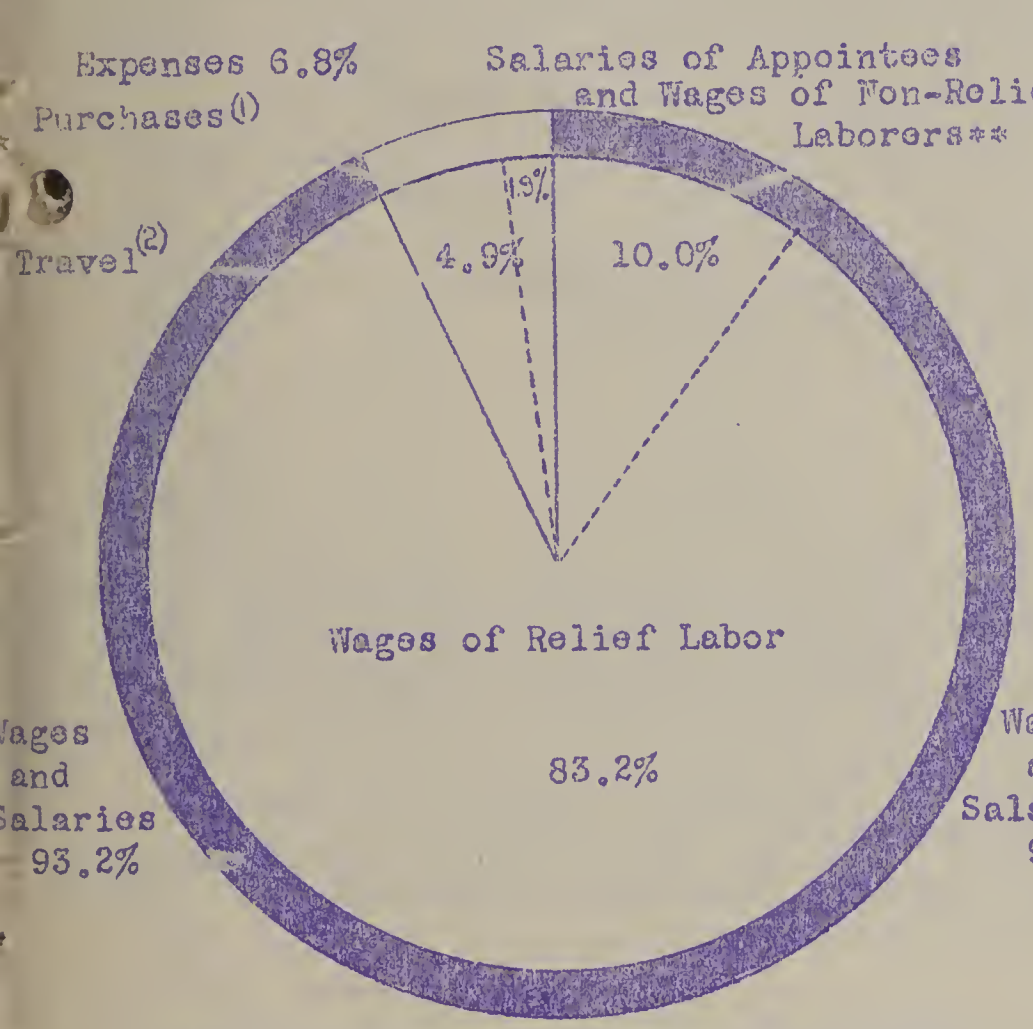
In addition to the obligations listed above, W.P.A. expenses for the Cambridge, Massachusetts regional office were incurred as follows:

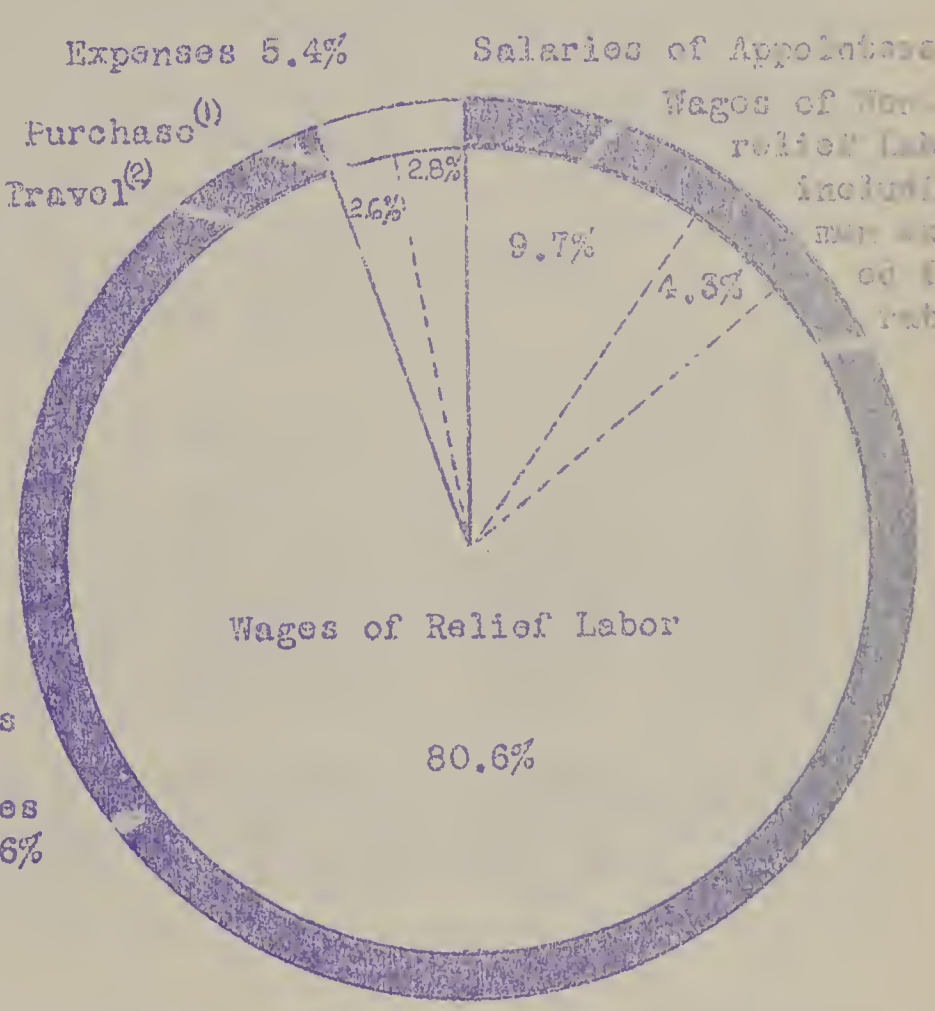
Source of Funds	Calendar Year 1939	July 29, 1935 to Dec. 31, 1939
Massachusetts allotments.....	$2,777.13	$13,512.48
Administrative allotments....	2,121.31	5,798.36
Totals.....	$4,898.44	$19,310.84

W.P.A. FUNDS FOR BLISTER RUST CONTROL IN NORTHEASTERN STATES



Total W.P.A. Allotments - 1935 to February 29, 1940, Inclusive - $3,401,151.97*





Total Obligations - Calendar Year 1939
$445,717.45

Total Obligations - 1935 to 1939, Inclusive
$3,308,162.15

*In addition $25,206.00 administrative funds were made available as of March 1, 1940 of which $20,240.00 was obligated to December 31, 1939.

**Wages of non-relief laborers amount to only 0.2% of total.

(1) Supplies, materials and equipment (1034 vouchers).

(2) Travel, subsistence and miscellaneous (1012 vouchers) for all supervisory personnel also all transportation for W.P.A. crews.

BLISTER RUST CONTROL ACTIVITIES UNDER STATE AND LOCAL W.P.A. PROGRAMS

The special blister rust control project under the State W.P.A. Program in Connecticut was continued throughout the calendar year 1939. The primary purpose of this special project which has been in operation since 1936 was to map the white pine areas and obtain information on blister rust infection conditions in the southern part of the state where little control work had been performed in previous years. Such data were desired in order to develop a blister rust control policy and intelligently plan future control work. Up to April 30, 1940, the mapping work had been completed in all but one township in the state as a result of the activities under the various emergency programs. Many of the townships have been remapped during the past two or three years as some of the early work, especially under the E.R.A. Program was not entirely satisfactory. In addition to the pre-eradication surveys and pine infection studies, a considerable amount of Ribes eradication work has been performed under the State W.P.A. Program in Connecticut during the period 1937-1939, inclusive in townships where it was not practicable to do the work under any of the other programs. Several of the State W.P.A. laborers in Connecticut were also assigned to blown-down timber mapping during the fall of 1938 and spring of 1939.

A maximum of 45 laborers were employed on control activities under the State W.P.A. Program in Connecticut during 1939 under the direction of two district supervisors. In addition, one state supervisor was employed to give direct supervision to the project and handle all administrative matters. The state blister rust control leader cooperated in developing plans for the project and giving technical supervision to the field activities.

Table 65 - Summary of Ribes Eradication Work Under State W.P.A. Program in Connecticut During 1939.

Type of Work	Total Acreage		No. Ribes Pulled		Total Man Days	Cost				Per Acre		
	Pine Worked	Pine Protected	Wild	Cult.		Indiv.	Towns	W.P.A.	Total	Cost	Ribes	Man Days
Initial	22,570	2,663	135,592	336	2061	34.03	577.80	9,012.84	9,624.67	.426	6.0	.09
Re-Era.	18,425	3,195	82,021	321	1439	-	224.70	7,232.22	7,456.92	.405	4.5	.08
Total	40,995	5,858	217,613	657	3500	34.03	802.50	16,245.06	17,081.59	.417	5.3	.09

Basis of costs: Includes total cost of laborers and foremen employed in locating and pulling Ribes; transportation of crews; and miscellaneous expenses for trail paper, picks, etc. Cost of any supervisors assigned to project not included.

Table 66 - Summary of Ribes Eradication Work Under State and Local W.P.A. Programs in Northeastern States During Period 1936-1939, Inclusive.

(By Years)

Year	Type of Erad.	Total Acreage Worked	Total Acreage Pine Protected	Ribes Pulled Wild	Ribes Pulled Cult.	Total Man Days	Cost Local Coop.	Cost State	Cost W.P.A.	Cost Total	Per Acre Cost	Per Acre Ribes	Per Acre Man Days
1936	Initial	1,989	215	1,396	97	465	346.00	32.35	1,838.98	2,217.33	1.11	0.7	.23
	Re-Erad	-	-	-	-	-	-	-	-	-	-	-	-
	Total	1,989	215	1,396	97	465	346.00	32.35	1,838.98	2,217.33	1.11	0.7	.23
1937	Initial	1,481	288	690	68	278	188.00	-	1,154.08	1,342.08	.906	0.5	.19
	Re-Erad	26,555	4,348	43,013	301	1871	116.25	24.05	8,750.98	8,891.28	.335	1.6	.07
	Total	28,036	4,636	43,703	369	2149	304.25	24.05	9,905.06	10,233.36	.365	1.6	.08
1938	Initial	6,588	536	920,275	1590	2783	263.60	-	12,323.62	12,587.22	1.91	139.7	.42
	Re-Erad	17,760	2,652	228,226	644	3491	1506.25	-	16,312.09	17,818.34	1.00	12.9	.20
	Total	24,348	3,188	1148,501	2234	6274	1769.85	-	28,635.71	30,405.56	1.25	47.2	.26
1939	Initial	22,570	2,663	135,592	336	2061	611.83	-	9,012.84	9,624.67	.426	6.0	.09
	Re-Erad	18,425	3,195	82,021	321	1439	224.70	-	7,232.22	7,456.92	.405	4.5	.08
	Total	40,995	5,858	217,613	657	3500	836.53	-	16,245.06	17,081.59	.417	5.3	.09
Total	Initial	32,628	3,702	1057,953	2,091	5587	1409.43	32.35	24,329.52	25,771.30	.790	32.4	.17
	Re-Erad	62,740	10,195	353,260	1,266	6801	1847.20	24.05	32,295.29	34,166.54	.545	5.6	.11
	Total	95,368	13,897	1411,213	3,357	12388	3256.63	56.40	56,624.81	59,937.84	.628	14.8	.13

(By States)

Con.	Initial	30,313	3,702	142,720	2,091	3594	1409.43	32.35	16,195.52	17,637.30	.582	4.7	.12
	Re-Erad	61,976	10,105	271,144	1,266	6386	1766.95	24.05	30,704.39	32,495.39	.524	1.9	.10
	Total	92,289	13,807	413,864	3,357	9980	3176.38	56.40	46,899.91	50,132.69	.543	3.1	.11
N.Y.	Initial	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad	135	90	12,915	-	104	80.25	-	324.90	405.15	3.00	95.7	.77
	Total	135	90	12,915	-	104	80.25	-	324.90	405.15	3.00	95.7	.77
Pa.	Initial	2,315	-	915,233	-	1993	-	-	8,134.00	8,134.00	3.51	395.4	.86
	Re-Erad	629	-	69,201	-	311	-	-	1,266.00	1,266.00	2.01	110.0	.49
	Total	2,944	-	984,434	-	2304	-	-	9,400.00	9,400.00	3.19	334.4	.78
Total	Initial	32,628	3,702	1057,953	2,091	5587	1409.43	32.35	24,329.52	25,771.30	.790	32.4	.17
	Re-Erad	62,740	10,195	353,260	1,266	6801	1847.20	24.05	32,295.29	34,166.54	.545	5.6	.11
	Total	95,368	13,897	1411,213	3,357	12388	3256.63	56.40	56,624.81	59,937.84	.628	14.8	.13

Basis of costs: Same as Table 65.

Nursery Sanitation - State W.P.A. Program

No nursery sanitation work was performed during 1939 under the State W.P.A. Program. Sanitation work under this program during the period 1936-1939, inclusive, was restricted to Connecticut where seven laborers were used for 243 man days during 1937 re-examining the environs of five nurseries for Ribes. A total of 335 wild Ribes were destroyed on the 1798 acres examined at a total cost of $1,184.20, all of which was paid from state W.P.A. funds.

Pine and Control Area Mapping - State W.P.A. Program

Pre-eradication survey work was conducted in 13 townships during 1939 under the State W.P.A. Program in Connecticut. As a result of 2,492 man days labor, a total of 63,376 acres was mapped in detail, many thousands of additional acres eliminated from control work since they did not contain sufficient pine to justify protection,

and 276½ miles of control area boundary lines were painted in the field. Expenditures for this pre-eradication survey work in Connecticut during 1939 were as follows: - Towns - $1382.42; State - $608.35; State W.P.A. - $13,029.90; Total - $15,020.67.

Table 67 - Summary of Pine and Control Area Mapping Under State W.P.A. Program in Connecticut, 1936-1939, Inclusive.

Year	No. Towns	Acreage Mapped	Acreage Examined But Not Mapped	Miles Boundary Lines Painted	Total Man Days	Cost			
						Towns	State	W.P.A.	Total
1936	5	36,706	-	-	580	40.70	31.68	2,851.57	2,923.95
1937	47	82,040	114,900	204½	4,636	-	-	25,768.16	25,768.16
1938	61	80,634	-	112½	4,299	912.50	30.75	22,587.90	23,531.15
1939	13	63,376	-	276½	2,492	1382.40	608.35	13,029.90	15,020.67
Total	-	262,756	114,900	169½	12,007	2335.62	670.78	64,237.53	67,243.93

Blown-Down Timber Mapping - State W.P.A. Program

Several of the State W.P.A. laborers in Connecticut also assisted on a survey to determine the amount of timber blown down in that state during the hurricane of September 21, 1938. The W.P.A. personnel surveyed conditions in nine of the more important white pine towns in the hurricane region during 1938 and ascertained that practically 100% of stands over 10" in diameter were affected and 90% of the trees in those stands were down. This 1938 survey work required 432 man days labor and cost $2,724.13. Of this total $87.50 was paid by one town and $57.66 by the state. The blown-down timber survey was continued during 1939 when W.P.A. laborers spent 814 man days mapping 109,661 acres in 17 townships. The total cost of this 1939 work was $4,829.33, of which $453.37 was paid by the towns and $4375.76 from W.P.A. funds. It is estimated that over 175,000,000 board feet of white pine timber was blown down by the hurricane in Windham, New London, Hartford, Tolland, New Haven, and Middlesex Counties. Very little damage occurred in Fairfield and Litchfield Counties, the latter being the most important white pine county in the state.

Special Field Studies - State W.P.A. Program

Two special field studies were also conducted during 1938 by employees assigned to the blister rust control project under the State W.P.A. Program in Connecticut. A white pine volume survey was made in the town of Cornwall where 1,564 plots containing 156.4 acres of white pine were examined. Practically all of the stands of mature pine in this township were sampled and it was ascertained that these tracts averaged 12,580 board feet of timber per acre. The data obtained on the survey in Cornwall will be used as a basis in estimating the volume of white pine timber in Connecticut. This volume study required 223 man days labor and cost $972.73. Of this total, $897.94 was paid from State W.P.A. funds, $62.50 by towns, and $12.29 by the state.

State W.P.A. laborers were also used for 909 man days during 1938 on a special study to determine the location and amount of one-year needle pines. This work was combined with a blister rust infection survey in Cornwall, Killingly and Voluntown. The total cost of this project was $4,512.15, all of which was paid from State W.P.A. funds except $912.50 contributed by towns and $30.75 paid by the state. These investigations were continued in 8 townships during 1939 when W.P.A. employees spent 599 man days on such activities. The total cost of the 1939 work was $3,277.00, of which $2952.99 was paid from W.P.A. funds and $324.01 by cooperating towns. A separate report on the results of the entire study will be submitted by the state blister rust control leader.

Table 68 - Total Cooperative Expenditures, By Cooperating Agencies, Under State and Local W. P.A. Programs in Northeastern States

State	Year	Individuals	Towns	State	W.P.A.	Totals
Conn.	1939	34.03	2,962.50	1,269.16	43,747.08	48,012.77
	1936-1939	843.86	6,712.50	2,525.36	192,498.94	202,580.68
N. Y.	1939	-	-	-	-	-
	1936-1939	80.25	-	2.40	324.90	407.55
Penna.	1939	-	-	-	-	-
	1936-1939	-	-	508.75	9,400.00	9,908.75
Totals	1939	34.03	2,962.50	1,269.16	43,747.08	48,012.77
	1936-1939	924.13	6,712.50	3,036.51	202,223.84	212,896.98

Table 69 - Total Cooperative Expenditures, By Projects, Under State and Local W.P.A. Programs in Northeastern States.

State	Year	Ribes Eradication	Eradication Assistants and Checkers	Nursery Sanitation	Mapping: Pine and Control Area	Mapping: Blown-Down Timber	Field Studies	Total
Conn.	1939	17,061.59	7,804.18	-	15,020.67	4,829.33	3,277.00	48,012.77
	1936-1939	50,132.59	17,093.18	1,184.20	67,243.93	7,553.46	59,373.22	202,580.68
N. Y.	1939	-	-	-	-	-	-	-
	1936-1939	405.15	2.40	-	-	-	-	407.55
Penna.	1939	-	-	-	-	-	-	-
	1936-1939	9,400.00	508.75	-	-	-	-	9,908.75
Totals	1939	17,061.59	7,804.18	-	15,020.67	4,829.33	3,277.00	48,012.77
	1936-1939	59,937.84	17,604.33	1,184.20	67,243.93	7,553.46	59,373.22	212,896.98

BLISTER RUST CONTROL ACTIVITIES UNDER S.C.S. PROGRAM IN NORTHEASTERN STATES

Control projects were conducted in cooperation with the Soil Conservation Service during 1939 in New York and Pennsylvania. Ribes eradication work was performed from two S.C.S. camps in New York where 18 men were used on such activities in 11 townships from June 1 to September 22. The state also cooperated by furnishing a technical foreman for the project. In Pennsylvania, an average of 43 enlisted S.C.S. laborers and two technical foremen were assigned to Ribes eradication work from two camps. Control work was conducted in 9 townships during the period June 28 to September 5.

Table 70 - Summary of Ribes Eradication Work Under S.C.S. Program In Northeastern States During 1939.

State	Type of Erad.	Acreage: Total Worked	Acreage: Pine Protected	Ribes Pulled: Wild	Ribes Pulled: Cult.	Total Man Days	Total Cost (All S.C.S.)	Per Acre: Cost	Per Acre: Ribes	Per Acre: Man Days
N.Y.	Initial	2,191	223	117,117	144	1,143	$2,540.94	1.16	53.5	.52
	Re-Erad.	337	60	4,013	-	90	200.06	.594	11.9	.27
	Total	2,528	283	121,130	144	1,233	2,741.00	1.08	47.9	.49
Penna	Initial	2,549	95	75,076	-	847	1,764.76	.692	29.5	.33
	Initial	4,740	318	192,193	144	1,990	4,305.70	.908	40.5	.42
Total	Re-Erad.	337	60	4,013	-	90	200.06	.594	11.9	.27
	Total	5,077	378	196,206	144	2,080	4,505.76	.887	38.6	.43

Basis of costs:- Includes actual working time of enlisted personnel figured at rate of $1.50 per eight hour man day, actual cost of other employees assigned to project, and cost of crew transportation.

Supervision of Ribes Eradication Work - S.C.S. Program

In New York, one state employee and one S.C.S. worker spent 227½ man days supervising the S.C.S. control activities during 1939. A state checker also spent a few days inspecting the areas worked by the S.C.S. crews. The total supervisory costs for the S.C.S. activities in New York amounted to $1245.41 of which $1056.04 was paid from state funds and $189.37 by the Soil Conservation Service. The work in Pennsylvania was directed by two S.C.S. technical foremen, a charge of $300.00 being made for the 50 days these supervisors were assigned to the control project.

Table 71 - Summary of Ribes Eradication Work Conducted Under S.C.S. Program in Northeastern States During Period 1936-1939, Inclusive.

By Years

Year	Type of Erad.	Total Acreage Worked	Total Acreage Pine Protected	Ribes Pulled Wild	Ribes Pulled Cult.	Total Man Days	Cost State	Cost W.P.A.	Cost S.C.S.	Cost Total	Per Acre Cost	Per Acre Ribes	Per Acre Man Days
1936	Initial	4,112	143	67,793	155	1,632	-	-	2,529.65	2,529.65	.615	16.5	.40
	Re-Erad.	214	26	2,190	-	410	-	-	635.73	635.73	2.97	10.2	1.92
	Total	4,326	169	69,983	155	2,042	-	-	3,165.38	3,165.38	.732	16.2	.47
1937	Initial	2,921	1,206	149,324	45	1,974	603.04	245.76	2,970.52	3,819.32	1.31	51.1	.68
1938	Initial	5,178	1,353	241,357	16	3,828	1,156.00	-	5,670.41	6,826.41	1.32	46.6	.74
	Re-Erad.	255	85	10,457	-	191	84.80	-	274.25	359.05	1.41	41.0	.75
	Total	5,433	1,438	251,814	16	4,019	1,240.80	-	5,944.66	7,185.46	1.32	46.3	.74
1939	Initial	4,740	318	192,193	144	1,990	-	-	4,305.70	4,305.70	.908	40.5	.42
	Re-Erad.	337	60	4,013	-	90	-	-	200.06	200.06	.594	11.9	.27
	Total	5,077	378	196,206	144	2,080	-	-	4,505.76	4,505.76	.887	38.6	.41
Totals	Initial	16,951	3,020	650,667	360	9,424	1,759.04	245.76	15,476.28	17,481.08	1.03	38.4	.56
	Re-Erad.	806	171	16,660	-	691	84.80	-	1,110.04	1,194.84	1.48	20.7	.86
	Total	17,757	3,191	667,327	360	10,115	1,843.84	245.76	16,586.32	18,675.92	1.05	37.6	.57

By States

N.Y.	Initial	8,425	2,690	369,380	205	5,013	1,759.04	245.76	8,168.04	10,172.84	1.21	43.8	.60
	Re-Erad.	592	145	14,470	-	281	84.80	-	474.31	559.11	.944	24.4	.47
	Total	9,017	2,835	383,850	205	5,294	1,843.84	245.76	8,642.35	10,731.95	1.19	42.6	.59
Pa.	Initial	8,526	330	281,287	155	4,411	-	-	7,308.24	7,308.24	.857	33.0	.52
	Re-Erad.	214	26	2,190	-	410	-	-	635.73	635.73	2.97	10.2	1.92
	Total	8,740	356	283,477	155	4,821	-	-	7,943.97	7,943.97	.909	32.4	.55
Totals	Initial	16,951	3,020	650,667	360	9,424	1,759.04	245.76	15,476.28	17,481.08	1.03	38.4	.56
	Re-Erad.	806	171	16,660	-	691	84.80	-	1,110.04	1,194.84	1.48	20.7	.86
	Total	17,757	3,191	667,327	360	10,115	1,843.84	245.76	16,586.32	18,675.92	1.05	37.6	.57

Basis of costs: Includes cost of enlisted men's time figured at rate of $1.50 per eight hour day, actual cost of other employees assigned to project, and cost of crew transportation. During the period 1936-1938, inclusive, total time of enlisted personnel was charged, while in 1939 only actual time these men spent on Ribes eradication was included.

Nursery Sanitation - S.C.S. Program

S.C.S. and state employees were used in New York during May and June, 1939 to re-examine 5,600 acres in the environs of the Painted Post and Tully nurseries, which have been leased by the state to the Soil Conservation Service to grow planting stock. The results of this 1939 sanitation work were as follows:

Total acreage worked		5,600
No. wild Ribes pulled		72
No. cultivated Ribes pulled		1
Total man days		21
Cost	(State	$62.40
	(S.C.S.	32.40
	(Total	$94.80

Table 72 - Summary of Nursery Sanitation Work Conducted Under S.C.S. Program in Northeastern States During Period 1936-1939, Inclusive

By Years

Year	Type of Grad.	Acreage Worked	Ribes Pulled: Wild	Ribes Pulled: Cult.	Total Man Days	Cost: State	Cost: B.E. & P.O.	Cost: S.C.S.	Cost: Total	Per Acre: Cost	Per Acre: Ribes	Per Acre: Man Days
1936	Initial	195	1,538	65	102	77.25	-	228.00	305.25	1.57	7.9	.52
1937	Re-Grad.	250	146	-	84	42.00	29.54	2.25	73.79	.295	0.6	.03
1938	Initial	215	0	3	19	29.00	-	55.30	84.30	.392	0	.09
	Re-Grad.	5,538	299	0	25	62.40	-	48.15	110.55	.020	0.05	.004
	Total	5,753	299	3	44	91.40	-	103.45	194.85	.034	0.05	.01
1939	Re-Grad.	5,600	72	1	21	62.40	-	32.40	94.80	.017	0.01	.003
Totals	Initial	410	1,538	68	121	106.25	-	283.30	389.55	.950	3.8	.30
	Re-Grad.	11,388	517	1	54½	166.80	29.54	82.80	279.14	.025	0.05	.004
	Total	11,798	2,055	69	175½	273.05	29.54	366.10	668.69	.057	0.2	.01

By States

State												
N. Y.	Re-Grad.	11,138	371	1	46	124.80	-	80.55	205.35	.018	0.03	.004
N. J.	Initial	195	1,538	65	102	77.25	-	228.00	305.25	1.57	7.9	.52
	Re-Grad.	250	146	-	84	42.00	29.54	2.25	73.79	.295	0.6	.03
	Total	445	1,684	65	110½	119.25	29.54	230.25	379.04	.852	3.8	.25
Penna.	Initial	215	0	3	19	29.00	-	55.30	84.30	.392	0	.09
Totals	Initial	410	1,538	68	121	106.25	-	283.30	389.55	.950	3.8	.30
	Re-Grad.	11,388	517	1	54½	166.80	29.54	82.80	279.14	.025	0.05	.004
	Total	11,798	2,055	69	175½	273.05	29.54	366.10	668.69	.057	0.2	.01

Basis of costs: Same as Table 71.

Table 73 - Total Expenditures, By Cooperating Agencies, Under S.C.S. Program in Northeastern States 1936-1939, Inclusive

State	Year	State Funds	B.E.& P.Q.	W.P.A.	S.C.S.	Totals
	1939	1,118.44	-	-	2,962.77	4,081.21
N.Y.	1936-1939	4,374.21	-	515.54	8,912.27	13,802.02
	1939		-	-	-	-
N.J.	1936-1939	119.25	29.54	-	230.25	379.04
	1939	-	-	-	2,064.76	2,064.76
Penna.	1936-1939	178.60	-	-	9,613.27	9,791.87
	1939	1,118.44	-	-	5,027.53	6,145.97
Totals	1936-1939	4,672.06	29.54	515.54	18,755.79	23,972.93

Table 74 - Total Cooperative Expenditures, By Projects, Under S.C.S. Program in Northeastern States, 1936-1939, Inclusive.

State	Year	Ribes Eradication	Eradication Assistants and Checkers	Nursery Sanitation	Totals
	1939	2,741.00	1,245.41	94.80	4,081.21
N.Y.	1936-1939	10,731.95	2,864.72	205.35	13,802.02
	1939	-	-	-	-
N.J.	1936-1939	-	-	379.04	379.04
	1939	1,764.76	300.00	-	2,064.76
Penna.	1936-1939	7,943.97	1,763.60	84.30	9,791.87
	1939	4,505.76	1,545.41	94.80	6,145.97
Totals	1936-1939	18,675.92	4,628.32	668.69	23,972.93

HURRICANE DAMAGE TO WHITE PINE IN NEW ENGLAND

The hurricane of September 21, 1938 felled an estimated total of about four billion board feet of merchantable timber in New England. Over half of this amount consisted of merchantable white pine. Generally speaking, little damage was done to white pine growth under 30 feet in height. The area most seriously affected comprised the section east of the Connecticut River extending from Long Island Sound to Canada. Most of the damage in Vermont occurred in those townships immediately adjacent to the Connecticut River. In Maine most of the damage was restricted to Oxford and Cumberland Counties. New Hampshire suffered the greatest loss, the total amount of felled timber being estimated at 1,600,000,000 board feet, of which 1,200,000,000 was white pine.

In spite of the tremendous losses, the volume of the felled white pine represents only 7.5 percent of the total volume of all merchantable pine in the affected states, as determined by the cartographical survey of 1925. Even on the assumption that the volume estimates of 1925 are 50 percent too high, which seems very unlikely, the amount of pine timber felled by the hurricane would represent only 15 percent of the total volume of this species. From a blister rust control viewpoint, we are primarily interested in young white pine growth under 30 ft. in height, which obviously has little merchantable value at the present time. As indicated above, this young growth was not injured to any appreciable extent by the hurricane. Table 75 shows the estimated volume of merchantable timber felled in each of the New England States.

Table 75 - Total Estimated Volume of Merchantable White Pine in New England And Estimated Amount Blown Down By Hurricane of September, 1938.

State	Volume of Merchantable Pine in M Bd. Ft.*				Amount of White Pine Timber Blown Down in M Bd. Ft.	% Total
	Pure Pine 6" & Over	30-79%	21-29%	Total		
Maine	4,876,640	6,359,320	993,032	12,228,992	55,000	0.45
N.H.	4,216,416	2,226,928	1,185,756	7,629,100	1,200,000	15.7
Vt.	478,768	1,281,176	313,668	2,073,612	66,000	3.2
Mass.	2,593,808	2,186,128	255,060	5,034,996	600,000	11.9
R.I.	213,488	-	-	213,488	40,000	18.7
Conn.	523,152	532,408	231,176	1,286,736	175,000	13.6
Totals	12,902,272	12,585,960	2,978,692	28,466,924	2,136,000	7.5

*Based on cartographical survey of 1925. Per acre volume in board feet: Pure pine over 6" DBH, 16,000; mixed pine 30-79%, 8,000; and mixed white pine 21-29%, 4,000.

BLISTER RUST CONTROL ACTIVITIES AND ACCOMPLISHMENTS

UNDER ALL PROGRAMS IN THE NORTHEASTERN STATES

DURING 1939

Table 76 Personnel Employed on Blister Rust Control Work In Northeastern States During 1939

State			Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	Penna.	Totals
State Leaders			1	1	1	1	1	1	1	1	8
District Leaders			4	5	3	4	-	1	8	5 (1)	30
Supervisors, Technical Foremen, and Checkers	C.C.C.		11	-	-	2	-	4	43	41	101
	Federal W.P.A.		4 (2)	3	-	2	-	-	16 (2)	-	25
	State & Local WPA		-	-	-	-	-	4	-	-	4
	S.C.S.		-	-	-	-	-	-	2	2	4
	Total		15	3	4	8	-	9	61	43	134
Crew Men (Includes crew foremen, scouts, and laborers)	Regular		70	258	34	-	-	2	75	23	462
	C.C.C.		120	29	-	24	-	47	668	707	1,595
	Federal W.P.A.	W.P.A.	170	176	122	140	19	72	236	116	1,051
		Others	55	-	-	-	-	-	54	-	109
	State & Local WPA		-	-	-	-	-	36	-	-	76
	S.C.S.		-	-	-	-	-	-	15	41	61
	Total		415	463	156	164	19	117	948	879	3,254
Total			435	472	160	173	20	127	1,011	1,028	3,426

(1) Includes two state agents who assisted state leader on supervisory work.
(2) Personnel listed for W.P.A. Program also assisted in supervision of control activities under Regular Cooperative Program.

The number of men actually engaged on blister rust control work was greater than the number indicated in the above table since the figures for the C.C.C. enlisted personnel are based on the average number of men employed during the period involved. During 1939, a total of 121 individual owners paid for control work on their properties or provided necessary labor. Several hundred other persons permitted the destruction of their cultivated bushes without compensation and hundreds of others gave general support to the control program.

Table 77 - Summary of Ribes Eradication Work Conducted Under All Programs in Northeastern States During 1939

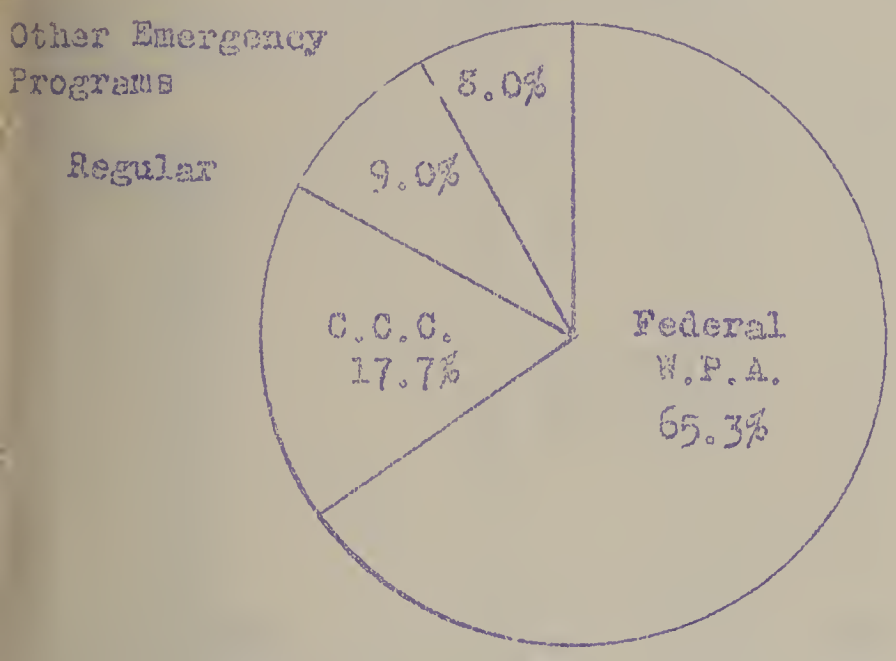
(Excludes nursery sanitation and cultivated black currant elimination)

Program		Regular Cooperative	C.C.C.	Federal W.P.A.	State and Local W.P.A.	S.C.S.	Total
Total Acreage Worked	Initial	30.599	60.192	222.635	22.570	4.740	340.736
	Re-Erad.	47.137	95.500	198.006	18.425	337	359.405
	Total	77.736	155.692	420.641	40.995	5.077	700.141
Acreage Pine Protected	Initial	10.996	17.571	71.011	2.663	318	102.559
	Re-Erad.	24.686	25.150	79.982	3.195	60	133.073
	Total	35.682	42.721	150.993	5.858	378	235.632
Wild Ribes pulled		1.309.409	2.971.602	8.825.768	217.613	196.206	13.521.598
Cult. Ribes pulled		929	2.638	15.119	657	144	19.487
Total man days		8.622	71.627	74.062	3.500	2.080	159.891
Total Cost	Individuals	1.416.56	-	118.55	34.02	-	1.571.14
	Towns	11.291.93	-	8.024.60	802.50	-	20.119.03
	Counties	7.454.40	-	48.06	-	-	7.502.46
	State	13.175.86	-	14.539.87	-	-	27.715.73
	C.C.C.	-	154.935.72	-	-	-	154.935.72
	Federal W.P.A.	-	-	250.609.43	-	-	250.609.43
	State & Local WPA	-	-	-	16.245.06	-	16.245.06
	Forest Service	636.45	-	-	-	-	636.45
	S.C.S.	-	-	-	-	4.505.76	4.505.76
	Total	33.977.20	154.935.72	273.340.56	17.081.59	4.505.76	483.840.83
Per Acre	Cost	.437	.995	.650	.417	.887	.691
	Ribes	16.8	19.1	21.0	5.3	38.6	19.3
	Man Days	.11	.46	.18	.09	.41	.23

ACRES ERADICATION PERFORMED UNDER EACH PROGRAM IN THE NORTHEASTERN STATES DURING CALENDAR YEAR 1939

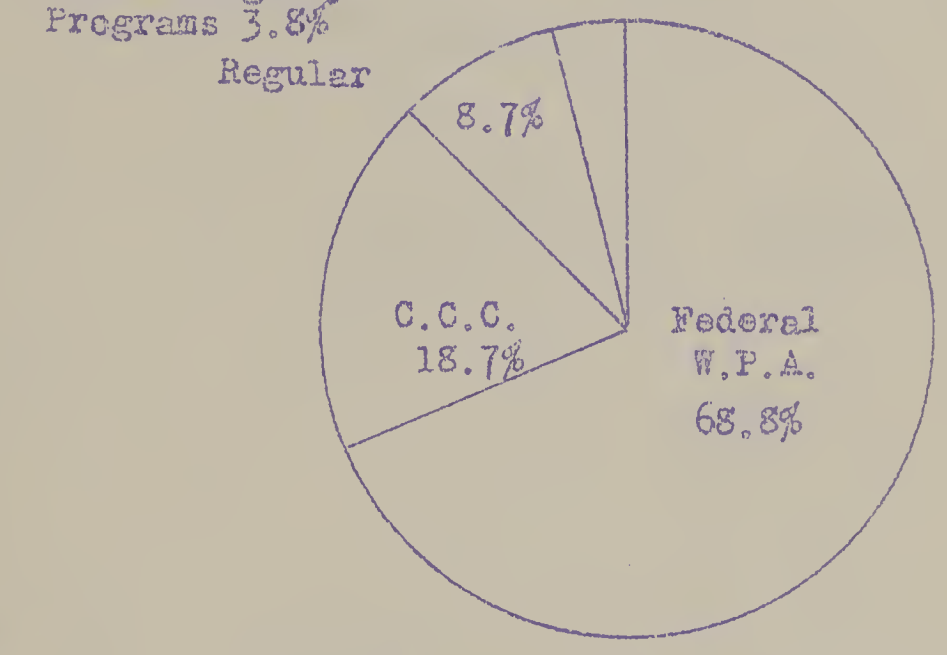
(Excludes Nursery Sanitation and Cultivated Black Currant Elimination)

Percentage of Total Acreage Cleared of Ribes Initial Eradication



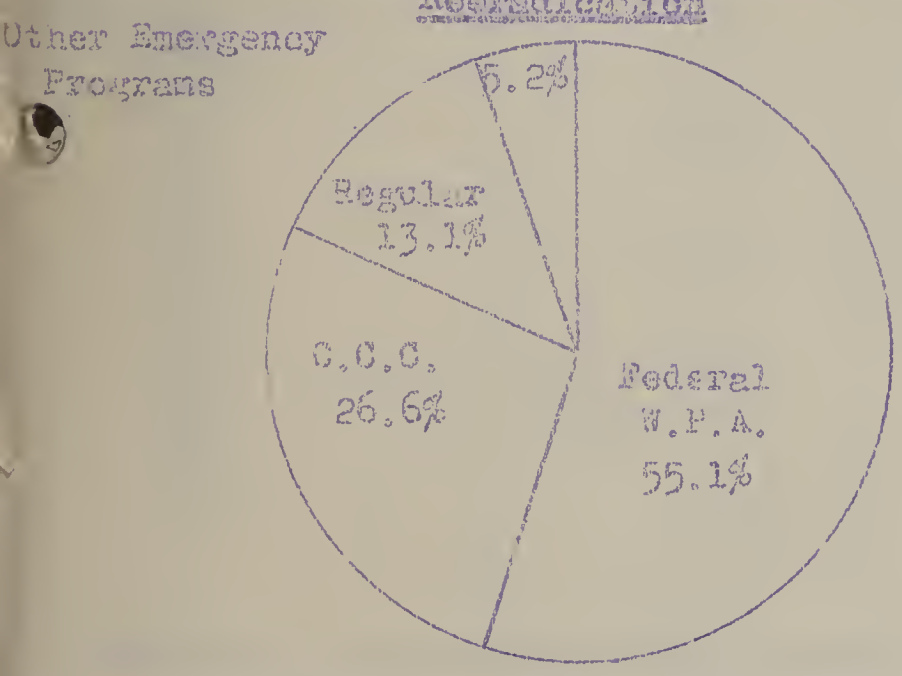
Total Acreage Worked - 340,736

Percentage of Total Wild Ribes Destroyed Initial Eradication

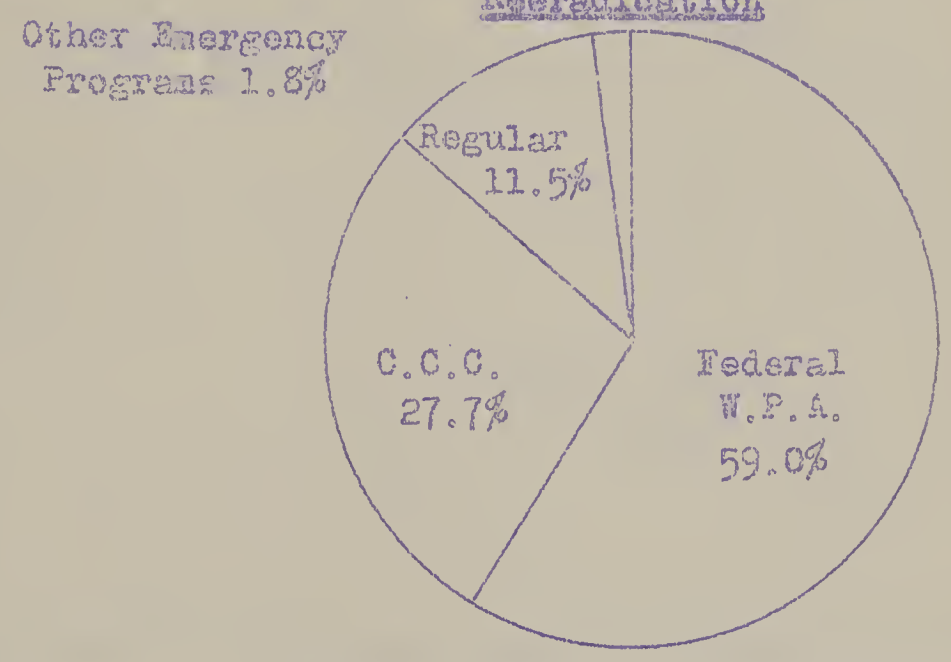


Total Number of Ribes - 8,633,850

Reeradication

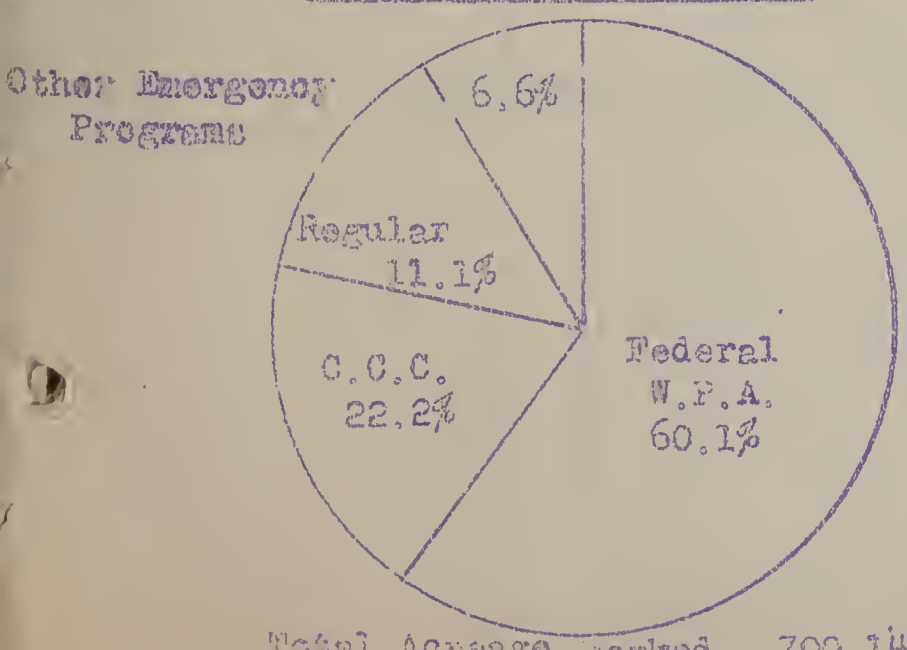


Total Acreage Worked - 359,409

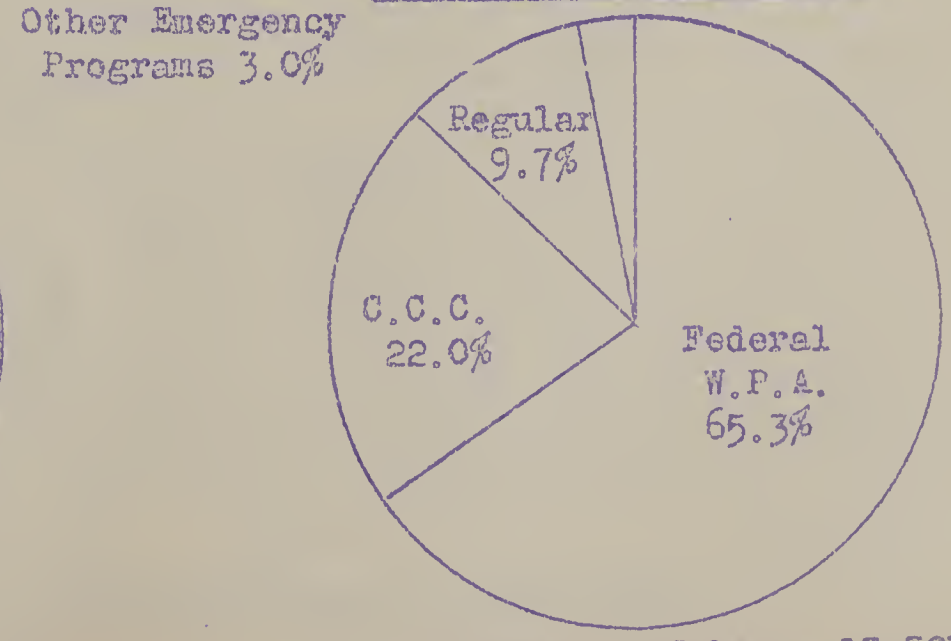


Total Number of Ribes - 4,887,748

Initial & Reeradication



Total Acreage Worked - 700,141

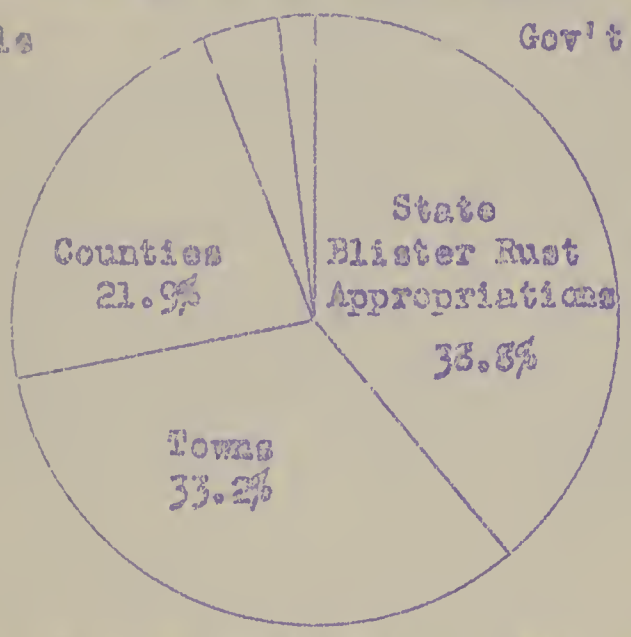


Total Number of Ribes - 13,521,598

AMOUNT OF TOTAL FUNDS SPENT ON PROJECT "RIBES ERADICATION" UNDER EACH PROGRAM IN NORTHEASTERN STATES CALENDAR YEAR 1939

(Includes Nursery Sanitation and Cultivated Black Current Elimination)

Regular Cooperative Program



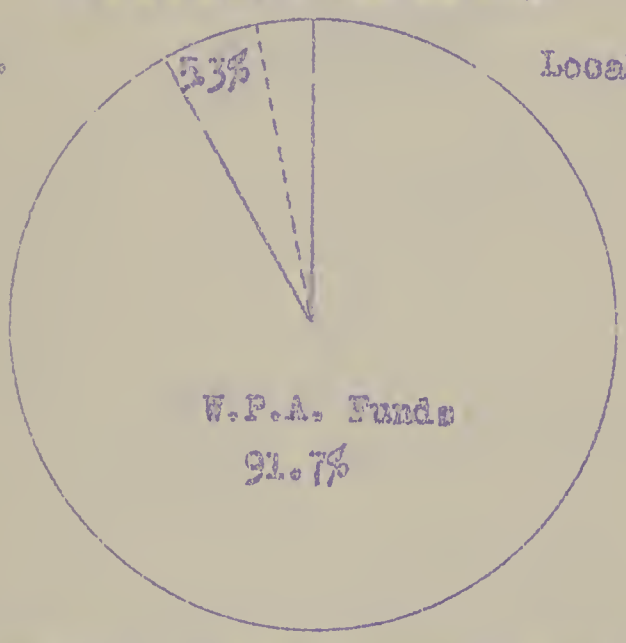
Total Cost of Ribes Eradication - $33,977.20

C.C.C. Program



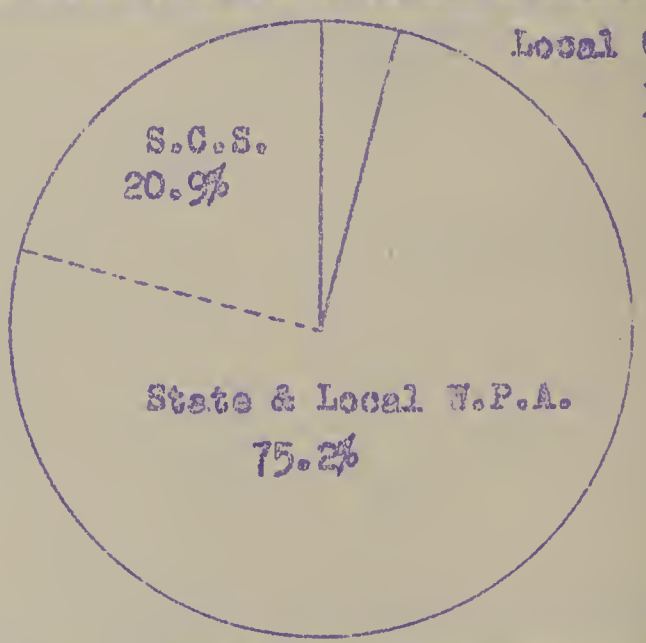
Total Cost of Ribes Eradication - $154,935.72

Federal W.P.A. Program



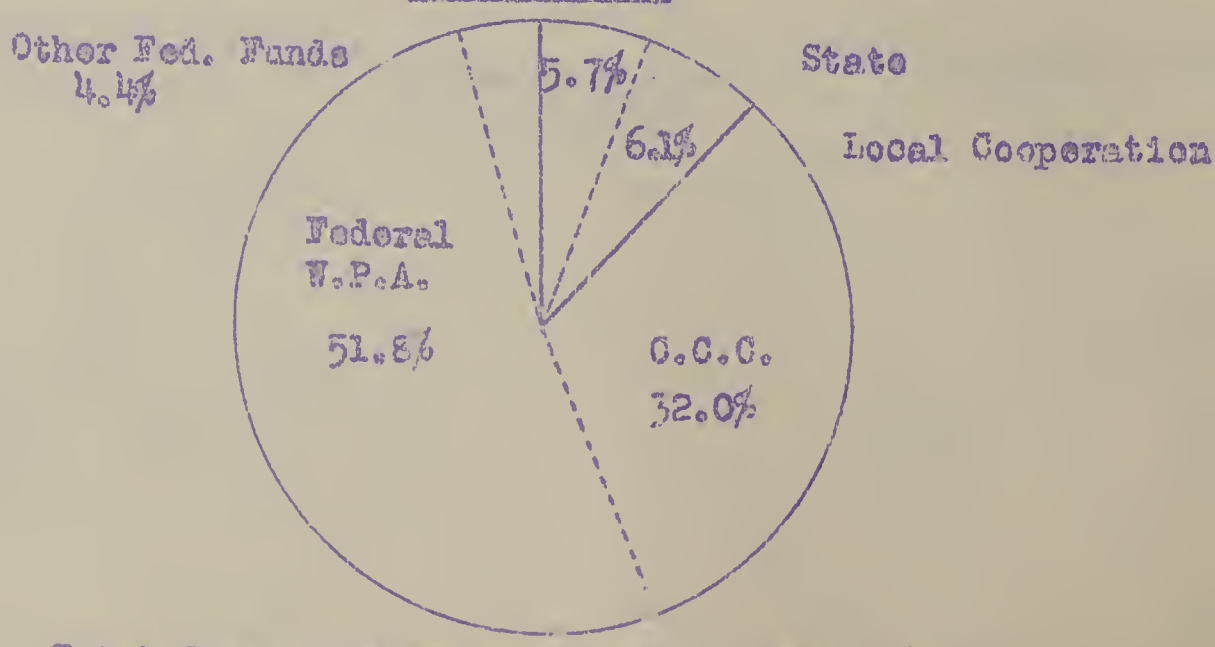
Total Cost of Ribes Eradication - $273,340.56

Other Federal Emergency Programs



Total Cost of Ribes Eradication - $21,587.35

All Programs



Total Cost of Ribes Eradication - $483,840.83

Table 78 Summary of Initial Ribes Eradication Work Performed Under All Progrems in Northeastern States During 1939

(By States)

State		Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N. Y.	Penna.	Totals
Total acreage worked		37.006	19,872	22.113	38,467	4,511	23,930	127,340	67,477	340,736
Acreage pine protected		12,414	11,705	3,393	11,033	2,257	2,945	46,006	12,806	102,559
Ribes pulled	Wild	1,617,090	825,156	1,057,275	371,238	11,294	135,677	2,753,295	1,862,825	8,633,850
	Cult.	1,772	1,314	308	1,269	348	336	7,925	2,545	15,817
Total man days		10,701	5,668	6,419	3,793	1,218	2,067	26,228	24,621	80,715
Cost	Individuals	-	-	498.35	35.60	-	34.03	605.85	8.80	1,182.63
	Towns	2,145.64	2,010.26	1,488.69	334.15	-	577.80	-	-	6,556.74
	Counties	-	11.90	-	-	-	-	5,729.06	-	5,740.96
	State	677.51	538.04	4.00	257.78	-	24.00	13,727.97	521.83	15,751.13
	C.C.C.	8,755.72	11.85	-	3,201.90	-	-	17,925.54	35,287.06	65,213.07
	Federal W.P.A.	18,404.62	16,005.46	19,407.89	8,583.12	4,351.74	-	50,293.62	28,558.50	145,634.95
	State W.P.A.	-	-	-	-	-	9,012.84	-	-	9,012.84
	S.C.S.	-	-	-	-	-	-	2,540.94	1,764.76	4,305.70
	Total	30,014.49	18,577.51	21,399.11	12,412.55	4,351.74	9,648.67	90,822.98	66,140.95	253,696.02
Per M.D.	Cost	.611	.935	.966	.323	.971	.403	.713	.950	.744
	Ribes	43.7	45.5	47.6	9.6	2.5	5.7	21.6	27.6	35.3
	Man Days	.29	.29	.29	.10	.07	.09	.21	.35	.21

Table 79 - Summary of Pre-Control Data, White Pine and Other All Projects in Northeastern States During 1939

(By States)

State		Maine	N. H.	Vt.	Mass.	R. I.	Conn.	N. Y.	Penna.	Total
Total acreage worked		52,031	54,847	2,777	70,750	658	34,567	104,517	32,698	359,845
Acreage pine protected		20,483	36,350	2,313	24,457	284	5,831	36,737	6,588	133,043
Ribes pulled	Wild	946,758	937,496	387,155	717,798	1,012	452,522	1,011,307	433,700	4,887,748
	Cult.	659	111	133	1,393	32	321	707	309	3,665
Total man days		10,441	9,108	2,452	9,129	147	5,675	25,147	17,077	79,171
Cost	Individuals	24.15	-	21.24	58.80	-	-	87.85	.20	396.54
	Towns	4,675.33	6,785.37	454.87	1,332.02	-	224.70	90.00	-	13,562.29
	Counties	-	36.16	-	-	-	-	1,725.34	-	1,761.50
	State	794.24	1,943.43	-	1,665.71	-	-	7,153.72	987.50	11,964.60
	C.C.C.	4,191.22	326.40	-	1,357.26	-	7,106.74	40,226.91	36,514.12	89,722.65
	Federal W.P.A.	22,146.66	21,129.74	7,665.34	31,580.41	597.48	3,417.35	18,136.33	301.22	104,974.53
	State W.P.A.	-	-	-	-	-	7,232.22	-	-	7,232.22
	S.C.S.	-	-	-	-	-	-	200.06	-	200.06
	Forest Service	141.25	495.20	-	-	-	-	-	-	636.45
	Total	31,972.85	30,716.30	8,337.72	35,414.20	597.48	17,981.01	67,620.21	37,803.04	230,442.81
Per Acre	Cost	.614	.560	.893	.501	.908	.520	.647	1.16	.641
	Ribes	18.2	17.1	41.5	10.1	1.5	13.1	9.7	13.3	13.6
	Man Days	.20	.17	.26	.13	.22	.16	.24	.52	.22

Table 80 - Summary of Initial and Re-Eradication Work Performed Under All Programs in Northeastern States During 1939

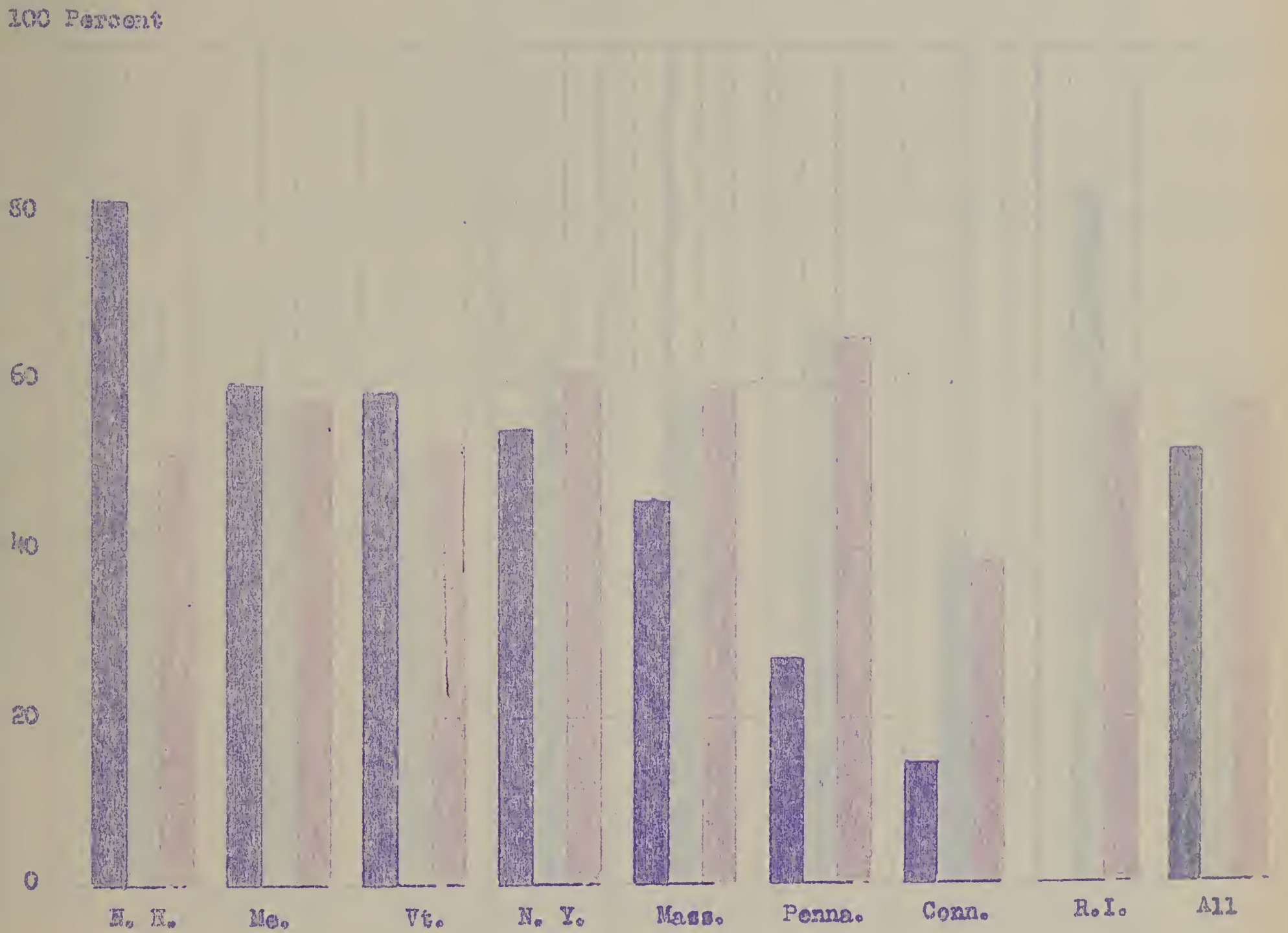
(By States)

State		Maine	N. H.	Vt.	Mass.	R. I.	Conn.	N. Y.	Penna.	Total
Total acreage worked		89,037	74,719	31,450	109,217	5,169	58,517	231,857	100,175	700,141
Acreage pine protected		32,897	48,085	5,706	35,490	2,541	8,776	82,743	19,394	235,632
Ribes pulled	Wild	2,563,848	1,762,652	1,444,430	1,089,036	12,305	588,199	3,764,602	2,296,525	13,521,597
	Cult.	2,431	1,425	446	2,662	380	657	8,632	2,854	19,487
Total man days		21,142	14,776	8,671	12,922	1,365	7,742	51,375	41,698	159,891
Cost	Individuals	24.15	-	715.86	94.40	-	34.03	693.70	9.00	1,571.14
	Towns	6,820.97	8,795.63	1,943.76	1,666.17	-	802.50	90.00	-	20,119.03
	Counties	-	48.06	-	-	-	-	7,454.40	-	7,502.46
	State	1,471.75	2,481.47	4.00	1,343.49	-	24.00	20,881.69	1,509.33	27,715.73
	C.C.C.	12,977.94	338.25	-	4,559.16	-	7,106.74	58,152.45	71,801.18	154,935.72
	Federal W.P.A.	40,551.28	37,135.20	27,073.23	40,163.53	4,979.22	3,417.35	68,429.95	28,859.72	250,609.48
	State W.P.A.	-	-	-	-	-	16,245.06	-	-	16,245.06
	S.C.S.	-	-	-	-	-	-	2,741.00	1,764.76	4,505.76
	Forest Service	141.25	495.20	-	-	-	-	-	-	636.45
	Total	61,987.34	49,293.81	29,736.85	47,826.75	4,979.22	27,629.68	158,443.19	103,943.99	483,840.83
Per Acre	Cost	.696	.660	.946	.438	.963	.472	.683	1.04	.691
	Ribes	28.8	23.6	45.9	10.0	2.4	10.1	16.2	22.9	19.3
	Man Days	.24	.20	.28	.12	.26	.13	.22	.42	.23

Table 61 - Summary of All Ribes Eradication Work Performed on Federal Lands in Northeastern States During 1939

Project	Type of Erad.	Acreage Worked	Ribes Pulled		Total Man Days	Cost				Per Acre		
			Wild	Cult.		State	Forest Service	C.C.C.	Total	Cost	Ribes	Man Days
Acadia National Park, Maine	Initial	1,036	27,130	-	444	-	-	931.68	931.68	.899	26.2	.43
	Re-Erad.	613	1,987	-	166	-	-	347.82	347.82	.567	3.2	.27
	Total	1,649	29,117	-	610	-	-	1,279.50	1,279.50	.776	17.7	.37
White Mt. National Forest, Maine	All Re-Erad.	85	3,754	-	47	-	141.25	-	141.25	1.66	44.2	.55
White Mt. National Forest, N.H.	Initial	56	273	-	6	-	-	11.85	11.85	.212	4.9	.11
	Re-Erad.	5,300	48,654	-	324	133.50	495.20	326.40	955.10	.180	9.2	.06
	Total	5,356	48,927	-	330	133.50	495.20	338.25	966.95	.181	9.1	.06
Sub-Totals White Mt. National Forest	Initial	56	273	-	6	-	-	11.85	11.85	.212	4.9	.11
	Re-Erad.	5,385	52,408	-	371	133.50	636.45	326.40	1,096.35	.204	9.7	.07
	Total	5,441	52,681	-	377	133.50	636.45	338.25	1,108.20	.204	9.7	.07
Totals	Initial	1,092	27,403	-	450	-	-	943.53	943.53	.864	25.1	.41
	Re-Erad.	5,998	54,395	-	537	133.50	636.45	674.22	1,444.17	.241	9.1	.09
	Total	7,090	81,798	-	987	133.50	636.45	1,617.75	2,387.70	.337	11.6	.14

PERCENTAGE OF TOTAL EXPENDITURES IN THE VARIOUS NORTHEASTERN STATES FOR RIBES ERADICATION WORK DURING 1939.



Note: Includes regular Ribes eradication, special black currant elimination, and nursery sanitation.

Table 62 - Summary of Nursery Sanitation Work Conducted Under All Programs in Northeastern States During 1939.

State	Type of Erad.	No. Nurseries Worked	Acreage Worked	Ribes Pulled		Total Man Days	Cost					Per Acre		
				Wild	Cult.		State	C.C.C.	W.P.A.	S.C.S.	Total	Cost	Ribes	Man Days
N. H.	Re-Erad.	1	110	13	-	1	-	-	4.64	-	4.64	.042	0.1	.01
Mass.	"	6	629	8,285	-	128	301.15	-	357.27	-	658.42	1.05	13.2	.20
R. I.	"	5	2,473	11	-	21	-	-	101.36	-	101.36	.041	0.01	.01
Conn.	"	7	2,509	76	10	58	290.00	-	-	-	290.00	.116	0.03	.02
N. Y.	"	4	9,060	1,037	2	128	120.00	-	369.11	32.40	521.51	.058	0.1	.01
Penna.	"	6	2,990	346	-	172	9.20	384.66	-	-	393.86	.132	0.1	.06
Totals	"	29	17,771	9,768	12	508	720.35	384.66	832.38	32.40	1,969.79	.111	0.5	.03
Percentage of Total Cost by Cooperating Agencies							36.6	19.5	42.3	1.6	100.0	-	-	-

SUMMARY OF RIBES ERADICATION WORK AT ACADIA NATIONAL PARK, MAINE
(1929-1939, INCLUSIVE)

add 2 file - 1934 Rept.

Year	Program	Type of Erad.	Acreage Worked	Ribes Pulled		Total Man Days	Cost (Labor Only)				Per Acre		
				Wild	Cult.		Park Service	Bureau Plant Industry	C.C.C.	Total	Cost	Ribes	Man Days
1929	Regular	Initial	1,148	74,373	-	298	461.50	770.90	-	1,235.40	1.08	64.8	.26
1930	Regular	Initial	2,762	239,941	-	1,112	2,692.75	1,974.67	-	4,667.42	1.69	86.9	.40
1931	Regular	Initial	1,900	75,381	-	693	2,674.01	262.50	-	2,936.51	1.55	39.7	.36
1932	Regular	Initial	1,916	114,225	-	695	2,514.27	137.76	-	2,652.03	1.38	59.6	.36
1929 to 1932	Regular	Initial	7,726	503,920	-	2,798	8,345.53	3,145.83	-	11,491.36	1.49	65.2	.36
		Re-Erad.	-	-	-	-	-	-	-	-	-	-	-
		Total	7,726	503,920	-	2,798	8,345.53	3,145.83	-	11,491.36	1.49	65.2	.36
1933	C.C.C.	Initial	4,741	129,628	212	3,403	-	-	4,839.89	4,839.89	1.02	27.3	.72
		Re-Erad.	2,328	14,956	-	1,010	-	-	1,583.34	1,583.34	.68	6.4	.43
		Total	7,069	144,584	212	4,413	-	-	6,423.23	6,423.23	.909	20.5	.62
1934	C.C.C.	Initial	5,387	126,349	30	2,834	-	-	4,754.01	4,754.01	.882	23.5	.53
		Re-Erad.	304	1,064	-	141	-	-	240.25	240.25	.790	3.5	.45
		Total	5,691	127,413	30	2,975	-	-	4,994.26	4,994.26	.878	22.4	.52
1935	C.C.C.	Initial	605	48,737	51	740	-	-	1,233.63	1,233.63	2.04	80.6	1.22
		Re-Erad.	2,789	9,682	-	1,122	-	-	1,871.58	1,871.58	.671	3.5	.40
		Total	3,394	58,419	51	1,862	-	-	3,105.21	3,105.21	.915	17.2	.55
1936	C.C.C.	Initial	984	49,550	-	799	-	-	1,340.96	1,340.96	1.36	50.4	.81
		Re-Erad.	2,460	7,104	-	743	-	-	1,246.55	1,246.55	.507	2.9	.30
		Total	3,444	56,654	-	1,542	-	-	2,587.51	2,587.51	.751	16.5	.45
1937	C.C.C.	Initial	189	7,823	-	200	-	-	368.03	368.03	1.95	41.4	1.06
		Re-Erad.	913	398	-	380	-	-	699.17	699.17	.766	0.4	.42
		Total	1,102	8,221	-	580	-	-	1,067.20	1,067.20	.968	7.5	.53
1938	No work performed		-	-	-	-	-	-	-	-	-	-	-
1939	C.C.C.	Initial	1,036	27,170	-	444	-	-	931.68	931.68	.899	26.2	.43
		Re-Erad.	613	1,987	-	166	-	-	347.82	347.82	.567	3.2	.27
		Total	1,649	29,117	-	610	-	-	1,279.50	1,279.50	.776	17.7	.37
1933 to 1939	C.C.C.	Initial	12,942	389,217	293	8,420	-	-	13,468.20	13,468.20	1.04	30.1	.65
		Re-Erad.	9,407	35,191	-	3,562	-	-	5,988.71	5,988.71	.637	3.7	.38
		Total	22,349	424,408	293	11,982	-	-	19,456.91	19,456.91	.871	19.0	.54
Totals	All	Initial	20,668	893,137	293	11,218	8,345.53	3,145.83	13,468.20	24,959.56	1.21	43.2	.54
		Re-Erad.	9,407	35,191	-	3,562	-	-	5,988.71	5,988.71	.637	3.7	.38
		Total	30,075	928,328	293	14,780	8,345.53	3,145.83	19,456.91	30,948.27	1.03	30.9	.49

Note: The cost of the C.C.C. labor-al time figured at rate of $1.35 per eight-hour man day in 1933. 1.40 in 1934; and $1.50 since 1934.

Table 63 - Special Ribes Nigrum Elimination Work Conducted Under All Programs in Northeastern States During 1939.

State		Mass.	N. Y.	Totals
No. Towns Worked		28	11	39
No. Towns Completed		20	11	31
No. Men Employed		4	3	7
No. Properties Inspected		67,641	3,117	70,758
No. Patches Located		213	25	238
No. Bushes Located	Nigrum	840	128	968
	Others	0	0	0
No. Bushes Pulled	Nigrum	625	128	753
	Others	0	0	0
Total Man Days		287	103	390
Cost	Individuals	181.60	0	181.60
	State	12.84	244.80	257.64
	W.P.A.	1,187.71	182.60	1,370.31
	Total	1,382.15	427.40	1,809.55

Table 24 -- Fire and Control Area Mapping Conducted Under All Programs in Northeastern States During 1939

State	No. Towns	Acreage Mapped	Acreage Examined But Not Mapped	Miles Boundary Lines Painted	Total Man Days	Cost					
						Towns	Counties	State	C.C.C.	W.P.A.	Total
Maine	45	198,460	660,599	-	5,094	-	-	30.91	-	19,026.20	19,[illegible]
N. H.	40	171,672	33,093	-	5,764	145.88	21.88	-	-	23,609.94	23,[illegible]
Vt.	55	188,423	824,429	43	3,003	421.70	-	19.60	-	10,387.69	10,[illegible]
Mass.	30	138,972	150,002	268	3,257	304.72	-	453.20	-	12,880.96	13,[illegible]
Conn.	16	88,588	-	276 3/4	3,035	1,382.42	-	608.35	-	15,293.49*	17,284.
N. Y.	128	1,055,143	425,716	-	6,566	-	-	8,341.41	-	20,981.04	29,322.
Penna.	184	94,753	-	75 1/4	3,882	-	-	-	5,168.31	9,729.04	14,897.
Totals	498	1,936,016	2,093,839	1,346 3/4	30,759	2,254.72	21.88	9,453.47	5,168.31	111,908.36	128,806.
Percentage of total cost by cooperating agencies						1.8	-	7.3	4.0	86.9	100.0

* Includes $13,029.90 W.P.A. funds expended on special state project.

Several hundred thousand acres were also examined but not mapped in Pennsylvania, but no definite record was kept of the acreage eliminated in that state.

Table 55 - Blister Rust Canker Elimination Work Under All Programs in Northeastern States During 1939

State		Maine	Vt.	Mass.	N. Y.	Penna.	Totals
Estimate No. Pines Examined		463	6,202	14,158	122,206	84,650	227,679
No. Fatally Infected Pines Cut Down		80	503	3,068	1,500	80	5,231
No. Pines From Which Cankers Removed		328	418	315	11,722	12,216	25,002
No. Cankers Removed	Branch	764	503	324	16,029	17,821	35,441
	Stem	69	129	-	696	21	915
Total Man Days		111	45	521	1,361	515	2,553
Cost	Individuals	36.00	154.84	-	-	-	190.84
	Towns	-	-	1,892.00	-	-	1,892.00
	State	-	-	-	278.44	-	278.44
	C.C.C.	276.33	-	-	-	-	276.33
	W.P.A.	-	-	214.49	5,196.69	1,908.07	7,319.25
	Total	312.33	154.84	2,106.49	5,475.13	1,908.07	9,956.86

State Compensation Paid For Cultivated Ribes Destroyed Under All Programs in Northeastern States During 1939.

During 1939, a total of 20,252 cultivated Ribes were destroyed in connection with control activities in the Northeastern States. Compensation was paid only in New York where one person was reimbursed $14.55 by the State for 97 bushes. The number of bushes for which compensation was paid represents only 0.5% of the total number destroyed during the year.

Table 86 - Total State Expenditures, By Cooperating Agencies, For Blister Rust Control Work in Northeastern States During Calendar Year 1939

State	State Funds	Town Funds	Individual Funds or Labor	County Funds	Total
Maine	7,004.51	6,820.97	60.15	-	13,885.63
N. H.	4,908.99	8,941.51	-	69.94	13,920.44
Vt.	1,283.50	2,365.46	870.70	-	4,519.66
Mass.	3,711.63	3,862.89	276.00	-	7,850.52
R. I.	2,559.99	-	-	-	2,559.99
Conn.	4,901.60	2,962.50	34.03	-	7,898.13
N. Y.	46,140.37	90.00	693.70	7,454.40	54,378.97
Penna.	5,644.84	-	9.00	-	5,653.84
Totals	76,155.93	25,043.33	1,943.58	7,524.34	110,667.16
% Total	68.8	22.6	1.8	6.8	100.0

Table 87 - Total State Expenditures During The Calendar Year 1939 For The Various Blister Rust Control Projects in The Respective Northeastern States.

State	Supervision and B.R.C. Agent Activities	Ribes Eradication	Erad. Assistants and Checkers	Black Currant Elimination	Nursery Sanitation	Ribes Compensation	Blister Rust Canker Elimination	Field Data		Total
								Mapping	General	
aine	2.603.95	8.316.87	2.897.90	-	-	-	36.00	30.91	-	13.885.63
. H.	1.898.17	11.325.16	529.35	-	-	-	-	167.76	-	13.920.44
t.	1.259.90	2.663.62	-	-	-	-	154.84	441.30	-	4.519.66
ass.	467.16	3.104.06	1.133.79	194.44	301.15	-	1.892.00	757.92	-	7.850.52
. I.	2.559.99	-	-	-	-	-	-	-	-	2.559.99
onn.	2.392.54	860.53	1.586.71	-	290.00	-	-	1.990.77	777.58	7.898.13
. I.	-	29.119.79	12.764.90	244.80	320.00	14.55	278.44	8.341.41	3.495.08	54.378.97
enna.	3.961.45	1.518.33	-	-	9.20	-	-	-	164.86	5.653.84
Totals	15.143.16	56.908.36	18.912.65	439.24	720.35	14.55	2.361.28	11.730.07	4.437.52	110.667.14
% Total	13.7	51.4	17.1	0.4	0.7	-	2.1	10.6	4.0	100.0

Table 58 - Total Federal Expenditures During The Calendar Year 1939 For The Various Blister Rust Control Projects in The Respective Northeastern States.

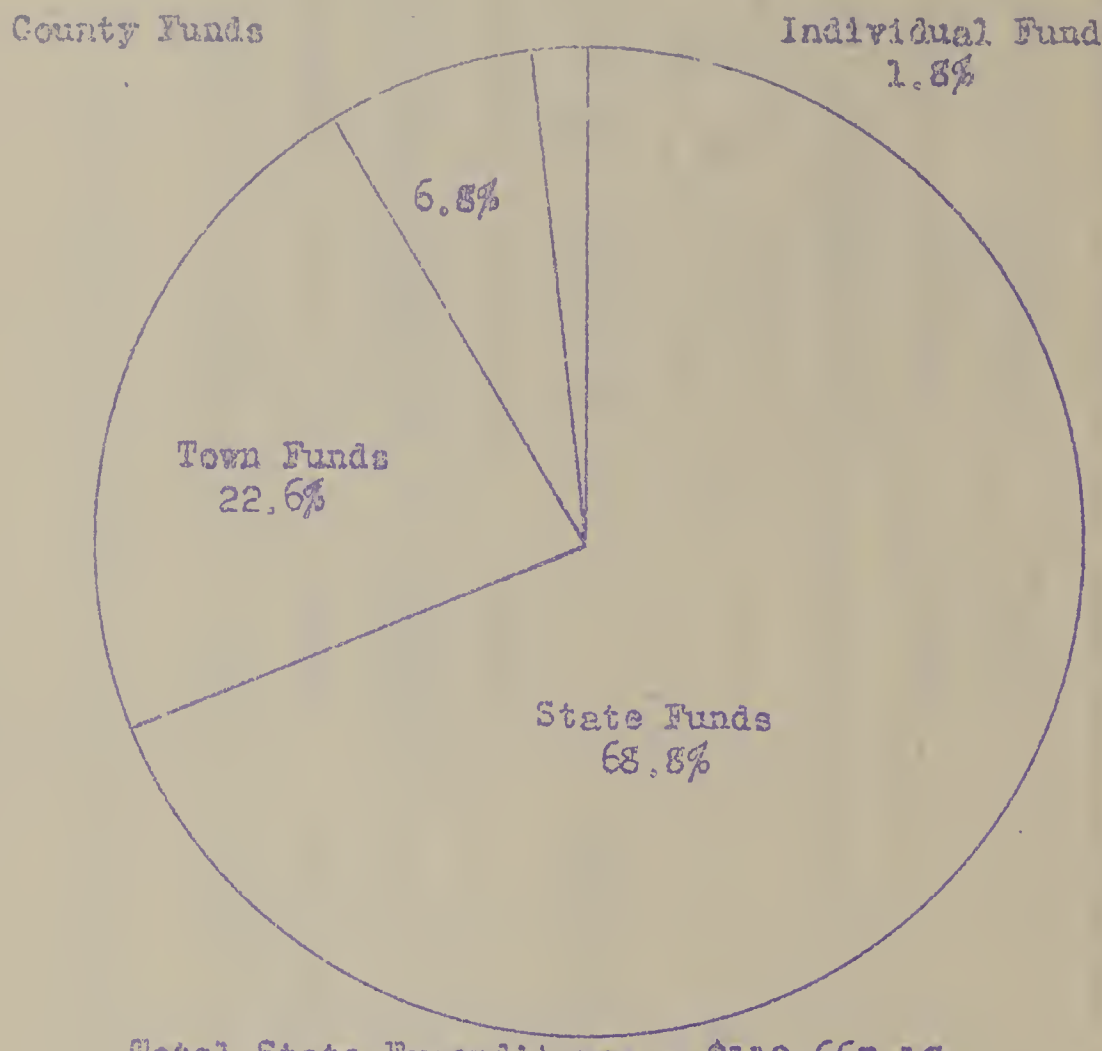
State	Supervision and B.R.C. Agent Activities	Ribes Eradication	Erad. Assistants and Checkers	Black Currant Elimination	Nursery Sanitation	Blister Rust Canker Elimination	Field Data		Total
							Planting	General	
Maine	17.517.43	53.670.47	2.676.25	-	-	276.33	19.026.20	-	93.166.68
N. H.	19.153.08	37.968.65	770.13	-	4.64	-	23,609.94	66.24	81.572.68
Vt.	13.147.11	27.073.23	-	-	-	-	10.357.69	1.197.17	51.805.20
Mass.	16.140.52	44.722.69	692.70	1.187.71	357.27	214.49	12.880.96	-	76.196.34
R. I.	1.009.53	4.979.22	-	-	101.36	-	-	-	6.090.11
Conn.	5.031.08	26.769.15	9.674.04	-	-	-	15.293.49	7.328.75	64.096.51
N. Y.	30.196.03	129.323.40	8.442.00	182.60	401.51	5.196.69	20.981.04	10.442.00	205.165.27
Penna.	14.884.23	102.425.66	14.526.58	-	384.66	1.903.07	14.897.35	4.517.68	153.544.23
Totals	117.079.01	426.932.47	36.781.70	1.370.31	1.249.44	7.595.58	117.076.67	23.551.84	731.637.02
% Total	16.0	58.4	5.0	0.2	0.2	1.0	16.0	3.2	100.0

Table 89 - Total State and Federal Expenditures For Blister Rust Control in Northeastern States During Calendar Year 1939.

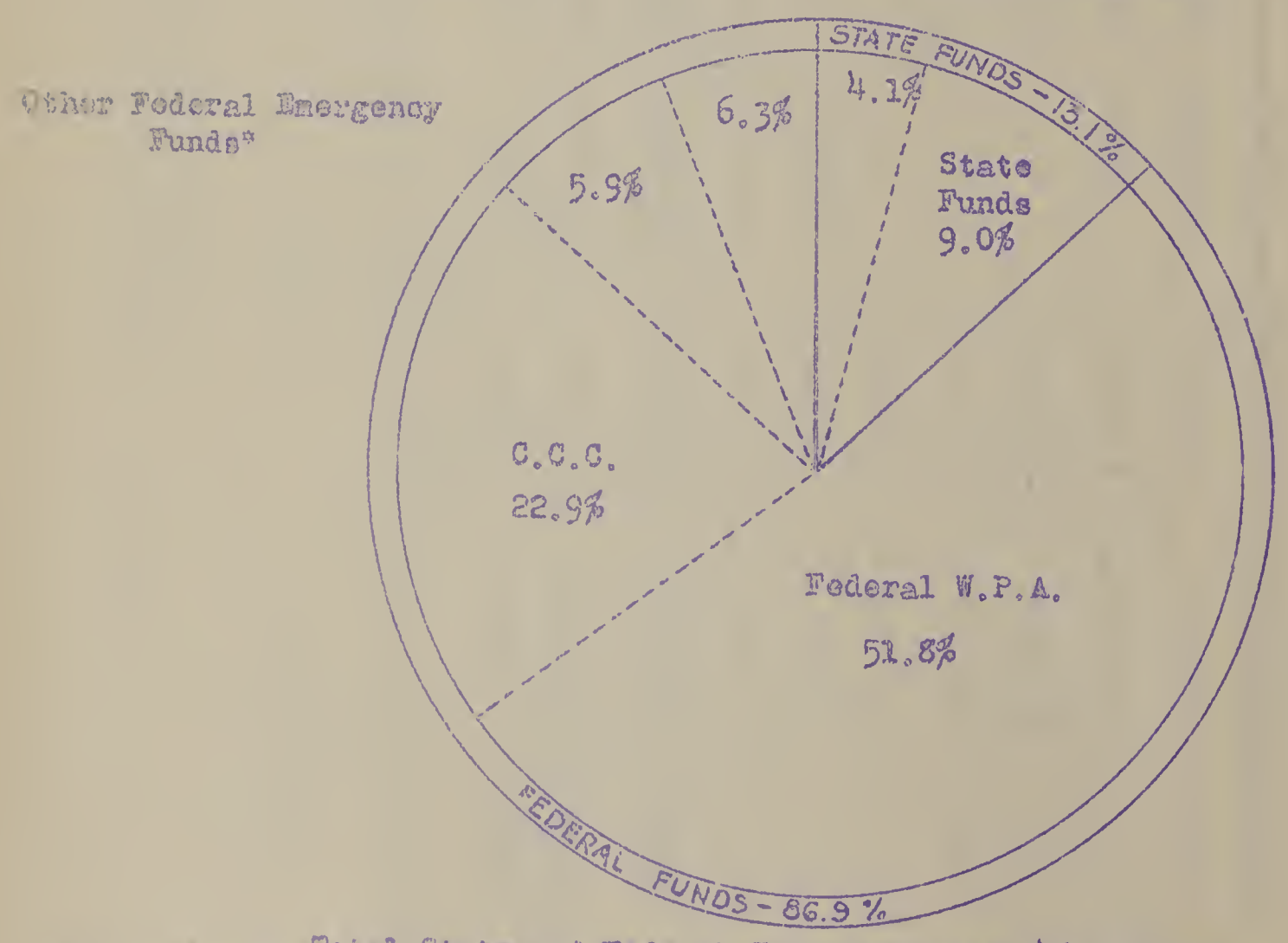
State	Total State Expenditures	Federal Expenditures						Total State and Federal Expenditures
		B.E. & P.Q.	C.C.C.	Federal W.P.A.	State & Local W.P.A.	Forest Service and S.C.S.	Total	
Maine	13,885.63	8,512.54	15,930.52	68,582.37	-	141.25*	93,166.68	107,052.31
N. H.	13,920.44	8,598.79	338.25	72,140.44	-	495.20*	81,572.68	95,493.12
Vt.	4,519.66	5,943.05	-	45,862.15	-	-	51,805.20	56,324.86
Mass.	7,850.52	7,943.86	4,642.43	63,610.05	-	-	76,196.34	84,046.86
R. I.	2,559.99	499.98	-	5,590.13	-	-	6,090.11	8,650.10
Conn.	7,898.13	3,734.75	9,637.41	6,977.27	43,747.08	-	64,096.51	71,994.64
N. Y.	54,378.97	11,489.53	66,316.06	124,396.91	-	2,962.77	205,165.27	259,544.24
Penna.	5,653.84	6,660.52	96,098.41	48,720.54	-	2,064.76	153,544.23	159,198.07
Totals	110,667.18	53,383.02	192,963.08	435,879.86	43,747.08	5,663.98	731,637.02	842,304.20
% of Total	13.1	6.3	22.9	51.8	5.2	0.7	86.9	100.0

* Forest Service

PERCENTAGE TOTAL STATE JUST CONTROL EXPENDITURES OF NORTHEASTERN STATES DURING CALENDAR YEAR 1939 PAID BY VARIOUS COOPERATING AGENCIES.



Total State Expenditures - $110,667.18



Total State and Federal Expenditures - $842,304.20

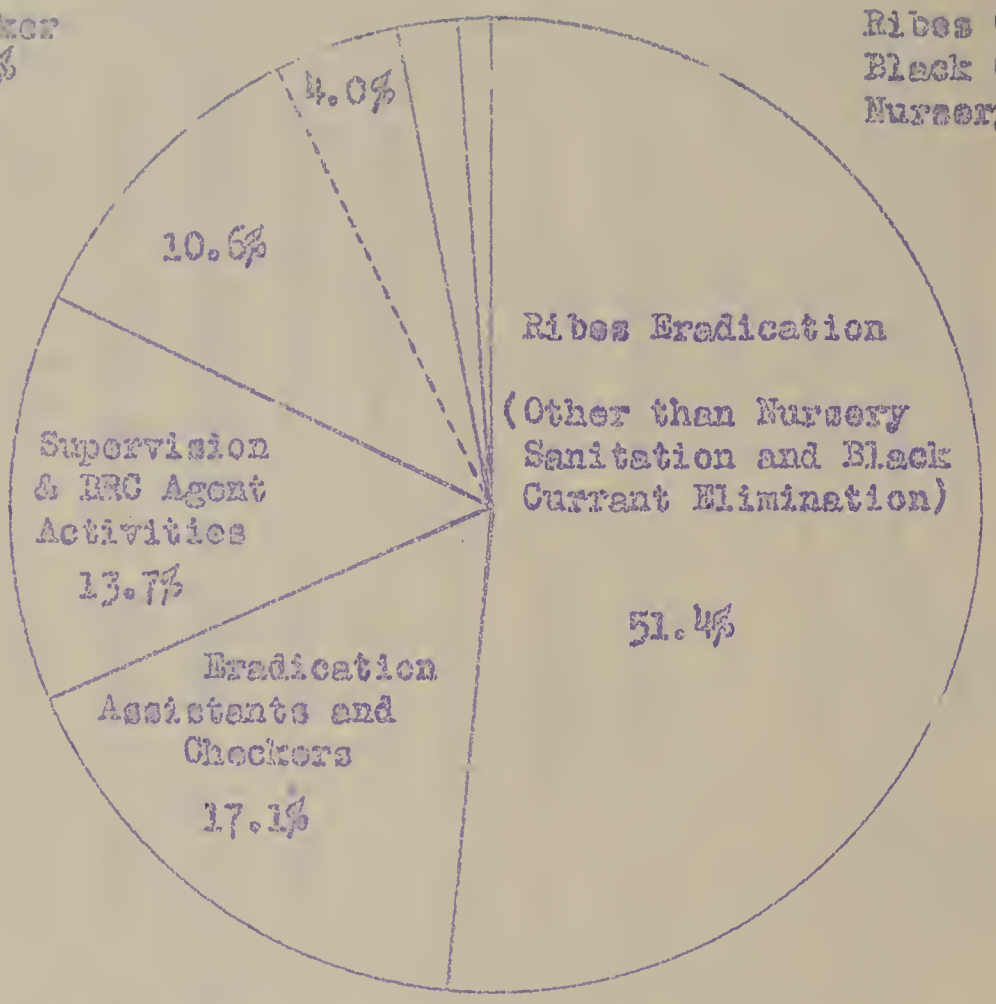
* Includes W.P.A. funds expended under State and Local W.P.A. Programs.

Table 90 - Total State and Federal Expenditures During Calendar Year 1939 For The Various Blister Rust Control Projects in The Northeastern States.

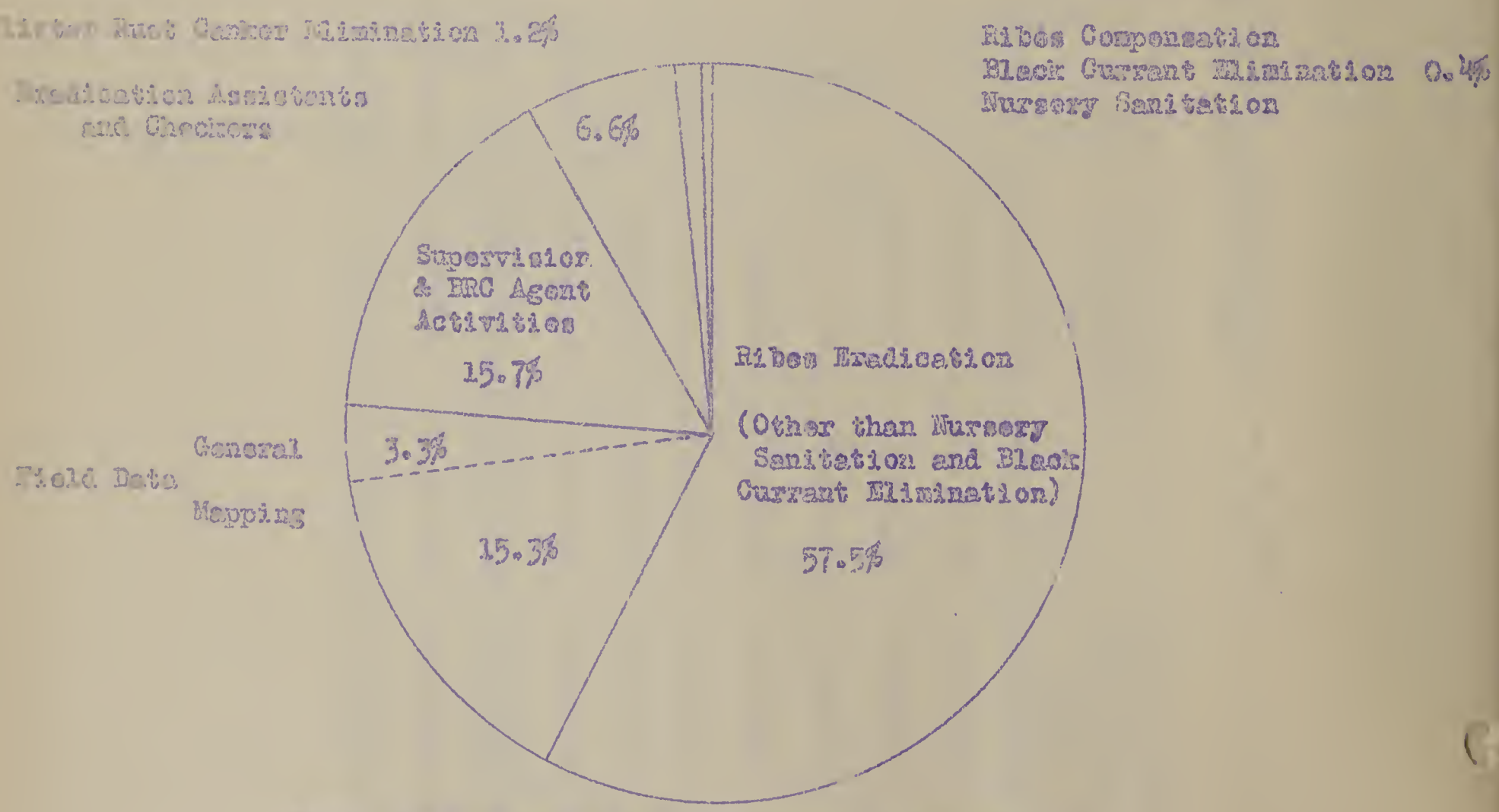
State	Supervision and B.R.C. Agent Activities	Ribes Eradication	Eradication Assistants and Checkers	Black Currant Elimination	Nursery Sanitation	Ribes Compensation	Blister Rust Canker Elimination	Field Data		Total
								Mapping	General	
Maine	20,121.38	61,987.34	5,574.15	-	-	-	312.33	19,057.11	-	107,052.31
N. H.	21,051.25	49,293.81	1,299.48	-	4.64	-	-	23,777.70	66.24	95,493.12
Vt.	14,407.01	29,736.85	-	-	-	-	154.84	10,823.99	1,197.17	56,319.86
Mass.	16,607.68	47,826.75	1,826.49	1,382.15	658.42	-	2,106.49	13,638.88	-	84,046.46
R. I.	3,569.52	4,979.22	-	-	101.36	-	-	-	-	8,650.10
Conn.	7,423.62	27,629.68	11,260.75	-	290.00	-	-	17,284.26	8,106.33	71,994.64
N. Y.	30,196.03	158,443.19	21,206.90	427.40	521.51	14.55	5,475.13	29,322.45	13,937.08	259,544.24
Penna.	18,845.68	103,943.99	14,526.58	-	393.86	-	1,908.07	14,897.35	4,682.54	159,198.07
Totals	132,222.17	483,840.83	55,694.35	1,809.55	1,969.79	14.55	9,956.86	128,806.74	27,989.36	842,304.02
% Total	15.7	57.5	6.6	0.2	0.2	-	1.2	15.3	3.3	100.0

[illegible] FOREST PROTECTION YEAR 1955

(Percentage of Total Spent on Each Project)



Total State Expenditures - $110,667.15



Total State and Federal Expenditures - $642,304.20

BLISTER RUST CONTROL ACTIVITIES AND ACCOMPLISHMENTS

UNDER ALL PROGRAMS IN THE NORTHEASTERN STATES

DURING PERIOD 1918-1939, INCLUSIVE

Table 91 Summary of All Ribes Eradication Work in Northeastern States
During Period 1918-1939, Inclusive - By Programs

Program		Regular Cooperative	C.C.C.	P.W.A.	Federal W.P.A.	State and Local W.P.A.	C.W.A. and F.E.R.A.	A.R.A.	S.C.S.	N.Y.A.	Totals
Total	Initial	8.095.909	1.306.388	179.970	1.588.578	32.628	20.547	10.639	16.951	346	11.251.958
Acreage	Re-Erad.	1.354.513	1.059.932	162.541	1.124.454	62.740	7.704	5.734	806	-	3.755.754
Worked	Total	9.460.722	2.366.320	342.511	2.713.032	93.368	28.251	16.373	17.757	346	15.040.712
Number	Initial	101.054.707	45.105.664	7.639.253	56.502.291	1.057.953	174.137	112.401	650.667	4.242	215.312.405
Old Ribes	Re-Erad.	6.152.735	15.414.652	1.363.399	20.411.226	353.260	158.556	13.779	16.660	-	45.889.330
Pulled	Total	109.217.445	63.521.346	9.007.652	76.913.517	1.411.213	332.723	126.270	667.327	4.242	261.201.735
Number	Initial	607.684	70.476	7.297	75.217	2.091	1.600	948	360	-	765.633
Alt.Ribes	Re-Erad.	23.395	16.969	5.379	28.244	1.266	306	110	-	-	75.672
Pulled	Total	631.082	87.405	12.676	103.461	3.357	1.906	1.058	360	-	841.305
Total	Initial	645.816	649.312	33.419	397.171	5.587	4.500	3.564	9.424	84	1.751.876
Man	Re-Erad.	84.977	407.708	16.156	210.099	6.503	3.270	772	691	-	730.484
Days	Total	733.792	1.057.020	49.575	607.270	12.388	7.770	4.336	10.115	84	2.482.360
	Local Coop.	1,031,022.46	-	3.793.65	39.068.15	3.256.63	1.143.00	-	-	-	1.078.283.89
	State	1.069.706.02	28.716.53	13.420.75	92.011.70	56.40	2.791.93	305.89	1.843.84	100.00	1.208.953.02
	E.P.I.	266.286.41	-	-	-	-	-	-	-	-	266.286.41
	B.E.&P.Q.	63.05	-	-	8.53	-	-	-	-	-	71.58
Total	Park Service	8.345.53	-	-	-	-	-	-	-	-	8.345.53
Cost	Forest Service	2.857.84	-	-	-	-	-	-	-	-	2.857.84
of All	C.C.C.	-	1.727.890.96	-	-	-	-	-	-	-	1.727.890.96
Ribes	P.W.A.	-	-	181.881.14	-	-	238.20	-	-	-	182.119.34
Erad.	W.P.A.	38.03	-	-	2.164.193.68	56.624.81	-	-	245.76	-	2.221.104.48
Work	S.W.A. & E.R.A.	-	-	-	-	-	27.902.90	-	-	-	27.902.90
	A.R.A.	-	-	-	-	-	-	15.057.94	-	-	15.057.94
	S.C.S.	-	-	-	-	-	-	-	16.586.32	-	16.586.32
	N.Y.A.	-	-	-	-	-	-	-	-	220.80	220.80
	Total	2.378.349.34	1.756.607.49	199.095.54	2.295.284.26	59.937.84	32.076.08	15.363.74	18.675.92	320.80	6.755.711.01
For Acre	Cost	.251	.742	.581	.846	.628	1.14	.940	1.05	.922	.449
Values for	Ribes	11.5	25.8	20.3	28.3	14.8	11.8	7.7	37.6	12.2	17.4
All Work	Man Days	.08	.45	.14	.22	.13	.28	.27	.57	.24	.17

Note: Acreage of initial Ribes eradication work under Regular Cooperative Program adjusted by deducting 1,017,911 acres from total of yearly acreages reported since 1918. This reduction represents eliminated area that was included in original acreage figures for Maine during period 1921-1930, inclusive, as explained under Table 94.

In Table 91, which summarizes the eradication work by programs, it is not possible to adjust the re-eradication acreages as in Table 93, which lists the totals by states.

CONTRASTS IN PROGRAMS OF FOR AGES PAYING FOR SOIL CONSERVATION AND DOMESTIC ALLOTMENT PAYMENTS - 1933-1939, INCLUSIVE

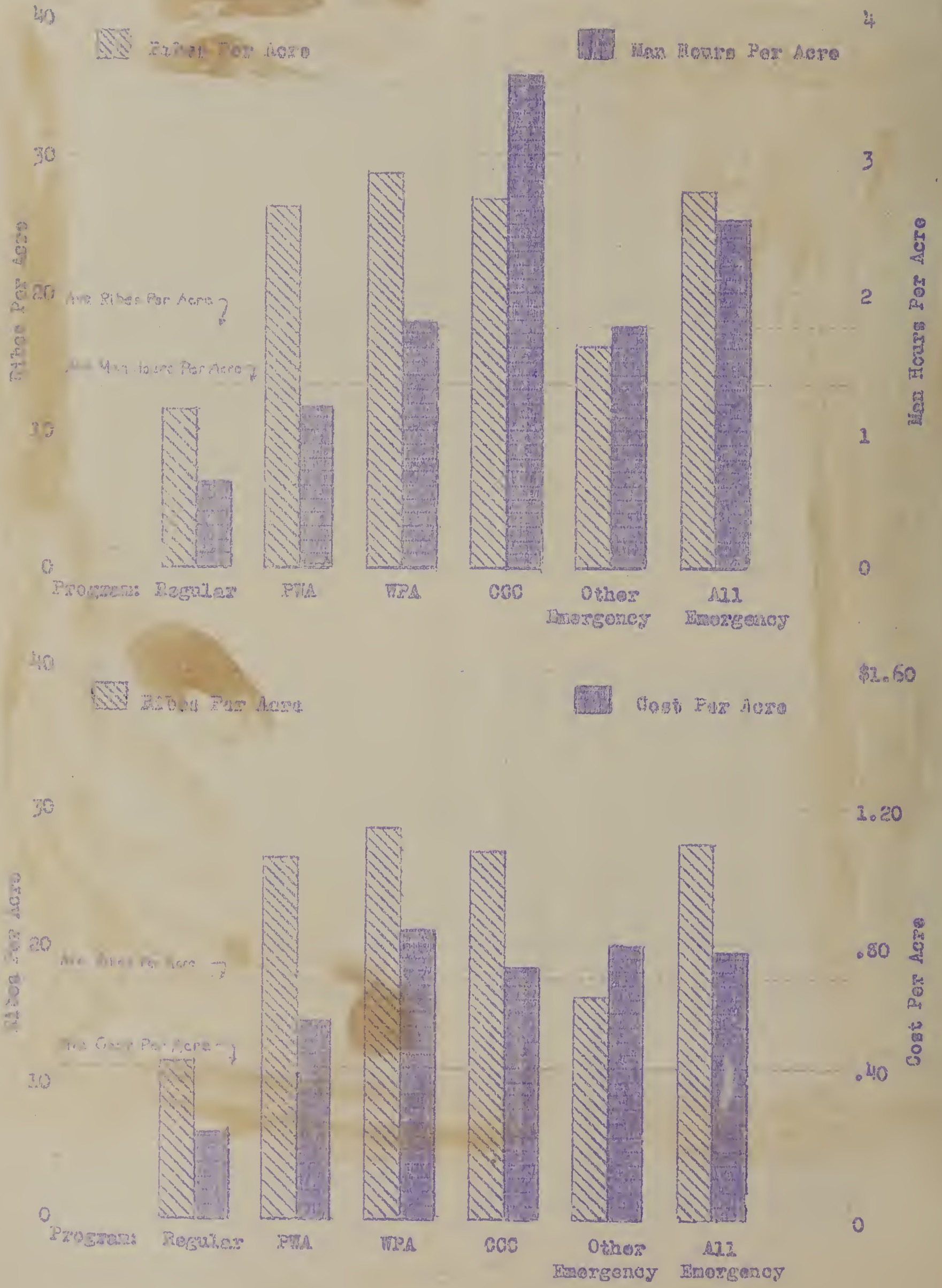


Table 92 - SUMMARY OF INITIAL RIBES ERADICATION WORK IN NORTHEASTERN STATES ALL YEARS

INCLUDES ALL RIBES ERADICATION WORK PERFORMED UNDER ALL PROGRAMS. HOWEVER, ALL BLACK CURRANT ELIMINATION AND NURSERY SANITATION PROJECTS SINCE 1929 ARE EXCLUDED

STATE	1918						1919						1920					
	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes
MAINE	4910	91862	235	5179 23	1 05	1 87	9216	333775	-	6 136 10	67	362	10283	176788	636	4994 05	49	172
N. H.	66292	959315	8427	2608909	39	145	163413	1659936	21171	35371 86	22	101	203373	2061996	22206	3703866	18	101
VT.	4698	78563	77	518264	110	168	2460	96749	-	221426	90	393	4301	36294	74	339160	73	81
MASS.	18706	356067	1919	1580531	84	190	10849	201882	2374	815618	75	186	19389	1224306	1421	1042287	34	631
R. I.	12715	13927	492	352797	28	11	40411	45320	1657	560974	14	11	23164	3973	1350	379692	16	3
CONN.	800	10900	-	Est 400 00	50	125	2500	31000	-	232334	93	124	2170	42793	2	197470	91	197
N. Y.	29337	904153	11000	4367916	148	308	23194	2181286	2675	1968908	343	940	7438	753790	47	3204394	431	1013
ALL STATES	137458	2413887	22150	9986340	73	176	252043	4549948	27877	13950056	55	181	270318	4301940	25936	9366274	35	199

STATE	1921						1922						1923					
	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes
MAINE	156221	56304	708	339876	02	4	190209	449287	3688	801248	04	23	336432	1208998	12095	1932736	06	36
N. H.	137827	1654443	9713	2264093	16	120	178489	1816829	9061	2870664	16	102	267807	3490130	24779	5160466	19	130
VT.	6319	60537	131	346401	55	96	13512	201906	812	613024	46	150	23950	272246	1234	808055	34	114
MASS.	32933	632618	4631	1029054	31	192	64302	1578294	2368	1337509	21	245	184988	1750693	14887	2680233	15	95
R. I.	26971	16022	552	382692	14	6	11500	11764	132	184000	16	10	28068	13011	1464	170156	06	03
CONN.	8000	41470	6	266407	33	52	6175	137501	-	465150	75	222	14062	288333	248	686314	49	205
N. Y.	14183	1275709	21	4660073	329	899	11030	634231	-	340820	309	593	15459	906617	367	4422978	287	573
ALL STATES	382454	3737103	15762	9288396	24	98	475217	4849812	16061	9681865	20	102	870766	7930028	55074	15860938	18	102

STATE	1924						1925						1926					
	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres	No. Ribes Wild	No. Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres	No. Ribes Wild	No. Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes
MAINE	399987	1829349	11599	22734 31	06	46	274034	1700870	15041	2007086	07	62	303709	3052380	17552	2091542	07	101
N. H.	324734	4023359	14941	5259944	16	124	237702	3180730	5996	4240899	18	134	178287	2968421	3612	4119978	23	166
VT.	24714	177187	592	895178	36	72	25226	310717	640	858767	34	123	16800	227908	1404	828199	49	136
MASS.	158465	2023070	38777	3464843	22	128	190945	745446	33610	2135513	11	39	183085	1078821	25596	2669759	15	59
R. I.	47480	22361	2953	209201	04	05	25640	4994	1928	151904	06	02	25537	16438	203	167423	07	06
CONN.	17215	289034	2447	598173	35	167	13735	270747	680	459203	33	197	21687	175157	318	477559	22	81
N. Y.	25198	1061368	2501	4090702	162	421	33611	993445	1153	3532338	105	296	36994	1075841	2087	3705210	100	291
PENNA.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ALL STATES	997793	9425728	73810	167914 72	17	94	800893	7206949	59048	13385710	17	90	766099	8594966	50772	14059670	18	112

STATE	1927						1928						1929					
	Acres	No. Ribes Wild	No. Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes
MAINE	260471	2582159	10225	2207546	09	99	202359	1577254	8778	2241760	11	78	234459	2129942	18244	2195978	09	91
N. H.	151985	2176006	2169	3122255	21	143	145329	2041412	4076	3157235	22	140	155719	1866554	6178	3096138	20	120
VT.	17090	262360	314	739222	43	154	14475	147930	144	602030	42	102	10295	87885	397	524587	51	85
MASS.	284411	864090	32733	2607795	09	30	227058	497963	34146	2851945	13	22	243879	825565	32226	2982784	12	34
R. I.	9735	22279	521	170086	18	23	21461	17777	615	262964	12	08	-	-	-	-	-	-
CONN.	12068	40441	715	178463	15	34	73981	98412	1289	672734	09	13	28394	127124	9471	712874	25	45
N. Y.	61676	1393905	2207	4480978	73	226	85454	1740941	9411	4557013	53	540	118465	1904238	6077	5892331	50	161
PENNA.	-	-	-	-	-	-	-	-	-	-	-	-	5459	329670	561	375626	69	604
ALL STATES	797436	7341240	48884	13506345	17	92	770117	6121689	58459	14345681	19	79	796670	7270978	73154	15780318	20	91

4,186,912

STATE	1930						1931						1932					
	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres	No. Ribes Wild	No. Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres	No. Ribes Wild	No. Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes
MAINE	197075	2096207	10357	2346351	12	106	114544	1286322	4846	1842969	16	112	51151	735489	3569	1198189	23	144
N. H.	818137	2807150	3192	4776694	22	129	158004	2891692	4022	4659631	30	183	79924	866328	1066	1470496	18	108
VT.	7245	74039	83	424345	59	102	8125	38827	129	314430	39	48	7476	34525	4060	236118	32	46
MASS.	108683	996376	8072	1329478	14	92	29815	128179	4270	649193	22	43	13584	106577	967	319638	24	78
R. I.	-	-	-	-	-	-	-	-	-	-	-	-	497	203	214	24673	50	04
CONN.	27253	33330	3140	301379	11	12	1510	25176	260	73005	48	171	-	-	-	-	-	-
N. Y.	89894	1306498	4302	4711614	52	143	118353	1484224	4956	3543361	47	125	145075	1223388	6198	4937012	34	85
N. J.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PENNA.	11745	656768	863	863148	74	339	24016	828958	703	997918	42	345	20212	802027	3342	606470	30	397
ALL STATES	660032	7970368	30009	14953009	23	121	454367	6683978	19186	14080507	31	147	317919	3768737	19416	8792598	28	119

STATE	1933						1934						1935					
	Acres	No. Ribes Wild	No. Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres	No. Ribes Wild	No. Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes
MAINE	73135	1885886	4919	3713752	51	258	89896	3880322	2518	5563850	62	432	134917	4965441	2944	10526931	78	368
N. H.	77075	4122871	752	4821190	63	535	75478	3500360	8	4756453	63	464	89318	3469646	375	6325507	71	388
VT.	17280	232624	225	1209521	70	135	19483	463240	20	1451169	75	238	28248	478377	210	2305830	82	169
MASS.	14003	223388	48	554516	40	160	12713	834977	1673	1135277	89	657	45417	755168	14522	2849950	63	166
R. I.	80	129	-	9707	121	16	-	-	-	-	-	-	26257	13531	320	715427	27	05
CONN.	-	-	-	-	-	-	36050	77987	1202	932012	26	22	48315	356528	4176	2057344	43	74
N. Y.	75773	659086	3113	3163348	42	87	182389	5687497	8115	11168467	61	312	245452	6418062	13060	21385817	87	261
N. J.	-	-	-	-	-	-	12695	22322	1163	89693	07	18	1482	18663	351	209633	141	126
PENNA.	19799	1704794	212	2236801	113	861	33184	4967191	2324	5717125	172	1497	64879	6244326	8482	11078903	171	962
ALL STATES	277145	8828780	9269	15708835	57	319	461888	19433896	17023	30814046	67	421	684285	22719742	44440	57455362	84	332

3,562,600

STATE	1936						1937						SUB-TOTALS 1918-1937 INCLUSIVE						1938						1939					
	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres As Reported	Acres As Adjusted*	No. Ribes Wild	No. Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes
MAINE	153642	9199352	4162	12308823	80	599	37557	1816977	791	3269981	87	484	3234207	2216296	41054964	132907	58492987	26	185	28142	1443244	1748	3033789	108	513	37006	1617090	1772	3001419	81	437
N. H.	140940	6266569	4550	10664283	76	445	35295	1595676	1209	2625370	74	452	3085128	3085128	53413623	147503	83241257	27	173	31388	1007895	289	2149705	68	321	19872	825156	1314	1857751	93	413
VT.	85839	4273925	1916	10213140	119	498	32736	1096116	819	2493624	76	335	370472	384032	8651953	13281	25944510	68	223	28473	674842	1095	2138297	73	237	22113	1057275	308	2139913	97	478
MASS.	59630	791298	889	3594329	60	133	14840	160614	159	554410	37	108	1917695	1917695	15775392	255288	36384662	19	82	31199	183298	970	720459	23	39	38467	371238	1269	1241255	32	96
R. I.	4199	4087	443	293348	70	10	7239	6856	297	348370	48	09	310954	310954	214672	13341	4383416	14	07	6872	24162	-	345348	50	35	4511	11294	348	438174	97	25
CONN.	42269	137756	2940	1493532	35	33	5144	11743	315	269363	52	23	361328	393523	2195132	27209	10113316	26	56	10231	13618	1648	633965	62	13	23950	135677	336	964867	40	57
N. Y.	429637	13618021	23791	42518791	99	317	178205	5556617	4762	15928972	89	312	1926817	1926817	50798519	105843	163648493	83	264	135448	3156594	4640	12725763	94	233	127340	2753295	7925	9082298	71	216
N. J.	2565	6795	199	229107	89	26	-	-	-	-	-	-	16742	16742	47780	1713	328433	32	29	-	-	-	-	-	-	-	-	-	-	-	-
PENNA.	129584	7167335	12975	2036957	157	553	66207	2863279	9418	854678	129	432	375085	375083	25564348	38880	50792339	135	682	58932	2452117	3461	7478103	127	414	67477	1862825	2545	6614093	98	276
ALL STATES	1048305	41465138	51865	101684920	97	396	377223	13107878	17770	34036871	90	347	11598428	10626274	197722785	733966	433529413	41	186	330705	8955770	13851	29225429	88	271	340736	8633850	15817	25339802	74	253

2,164,601

STATE	GRAND TOTALS 1918-1939 INCL.					
	Acres	No Ribes Wild	No Ribes Cult	Total Cost	Per Acre Cost	Per Acre Ribes
MAINE	2281444	44115298	136427	64528225	28	193
N. H.	3136588	55252674	149106	87248713	28	176
VT.	434618	10384072	14684	30222720	70	239
MASS.	1387361	16329928	231527	38346376	19	82
R. I.	322337	250128	13689	5166938	16	08
CONN.	427706	2344427	29193	11712148	27	55
N. Y.	2189605	56708808	118408	185456554	85	259
N. J.	16742	47780	1713	528433	32	29
PENNA.	501514	29879290	44886	64884537	129	596
ALL STATES	11297715	215312405	765635	488054644	43	191

* ADJUSTMENTS MADE IN TOTAL ACREAGE FIGURES FOR PERIOD 1918-1937, INCLUSIVE:

MAINE - 1,017,911 ACRES DEDUCTED FROM TOTAL OF YEARLY ACREAGES REPORTED UP TO 1937, INCLUSIVE. THIS REDUCTION REPRESENTS ELIMINATED AREA THAT WAS INCLUDED IN ORIGINAL ACREAGE FIGURES FOR YEARS 1921-1930, INCLUSIVE, WHEN THE CONTROL WORK WAS PERFORMED ON THE OWNER-LABOR BASIS. THESE ELIMINATED AREAS DID NOT CONTAIN SUFFICIENT PINE TO JUSTIFY CONTROL WORK.

VERMONT - 13,560 ACRES ADDED TO TOTAL OF YEARLY ACREAGES REPORTED UP TO 1937, INCLUSIVE. THESE 13,560 ACRES WERE ERRONEOUSLY REPORTED AS REWORKED.

CONNECTICUT - 32,197 ACRES ADDED TO TOTAL OF YEARLY ACREAGES REPORTED UP TO 1937, INCLUSIVE. THESE 32,197 ACRES WERE ERRONEOUSLY REPORTED AS REWORKED.

Table 94 - SUMMARY OF RIBES ERADICATION WORK IN NORTHEASTERN STATES - ALL YEARS

INITIAL AND RE-ERADICATION WORK

(INCLUDES ALL RIBES ERADICATION WORK PERFORMED UNDER ALL PROGRAMS. HOWEVER, ALL BLACK CURRANT ELIMINATION AND NURSERY SANITATION PROJECTS SINCE 1929 ARE EXCLUDED)

STATE	1918						1919					
	Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes		Wild	Cult.		Cost	Ribes
MAINE	4,910	91,862	235	5,179.23	1.05	18.7	9,216	333,775	–	6,136.10	.67	36.2
N. H.	66,292	959,315	8,427	26,089.09	.39	14.5	163,413	1,659,936	21,171	35,371.86	.22	10.2
VT.	4,698	78,563	77	5,182.64	1.10	16.8	2,460	96,749	–	2,214.26	.90	39.3
MASS.	18,706	356,067	1,919	15,805.31	.84	19.0	10,849	201,882	2,374	8,156.18	.75	18.6
R. I.	12,715	13,927	492	3,527.97	.28	1.1	40,411	45,320	1,657	5,609.74	.14	1.1
CONN.	800	10,000	–	Est 400.00	.50	12.5	2,500	31,000	–	2,323.34	.93	12.4
N. Y.	29,337	904,153	11,000	43,679.16	1.48	30.8	23,194	2,181,286	2,675	79,689.08	3.43	94.0
ALL STATES	137,458	2,413,887	22,150	99,863.40	.73	17.6	252,043	4,549,948	27,877	139,500.56	.55	18.1

STATE	1920						1921					
	Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes		Wild	Cult.		Cost	Ribes
MAINE	10,283	176,788	636	4,994.05	.49	17.2	156,221	56,304	708	3,398.76	.02	.4
N. H.	203,373	2,061,996	22,206	37,038.66	.18	10.1	137,827	1,654,443	9,713	22,640.93	.16	12.0
VT.	4,501	36,294	74	3,391.60	.75	8.1	6,319	60,537	131	3,464.01	.55	9.6
MASS.	19,389	1,224,306	1,421	10,422.87	.54	63.1	32,933	632,618	4,631	10,290.54	.31	19.2
R. I.	23,164	5,973	1,550	3,796.92	.16	.3	26,971	16,022	552	3,826.92	.14	.6
CONN.	2,170	42,793	2	1,974.70	.91	19.7	8,000	41,470	6	2,664.07	.33	5.2
N. Y.	7,438	753,790	47	32,043.94	4.31	101.3	14,183	1,275,709	21	46,600.73	3.29	89.9
ALL STATES	270,318	4,301,940	25,936	93,662.74	.35	15.9	382,454	3,737,103	15,762	92,885.96	.24	9.8

STATE	1922						1923					
	Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre	
		Wild	Cult		Cost	Ribes		Wild	Cult		Cost	Ribes
MAINE	190,209	449,287	3,688	8,012.48	.04	2.3	336,452	1,209,282	12,095	19,333.16	.06	3.6
N. H.	178,489	1,816,829	9,061	28,706.64	.16	10.2	268,237	3,496,733	24,779	51,651.48	.19	13.3
VT.	13,512	201,906	812	6,150.24	.46	15.0	25,190	278,570	1,234	8,498.43	.34	11.0
MASS.	201,931	1,776,107	14,887	28,411.92	.14	7.8	201,190	1,776,107	14,887	28,411.92	.14	7.8
R. I.	31,308	14,275	1,464	1,895.96	.06	0.5	14,062	288,333	248	6,863.14	.49	20.5
CONN.	6,175	137,501	–	4,651.50	.75	22.2	15,459	906,617	367	44,229.78	2.87	57.3
N. Y.	11,030	654,231	–	34,082.70	3.09	59.3	892,639	7,969,917	55,074	160,883.87	.18	8.9
ALL STATES	475,217	4,849,812	16,061	96,818.65	.20	10.2						

STATE	1924						1925					
	Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes		Wild	Cult		Cost	Ribes
MAINE	401,227	1,846,957	11,599	23,093.91	.06	4.6	274,678	1,710,015	15,041	20,257.62	.07	6.2
N. H.	331,402	4,098,527	14,989	53,590.23	.16	12.4	261,710	3,293,951	6,402	44,925.60	.17	12.6
VT.	25,688	182,154	592	9,280.02	.36	7.1	26,622	317,837	640	9,058.12	.34	11.9
MASS.	159,776	2,025,036	38,777	34,772.98	.22	12.6	195,201	751,830	33,610	21,759.45	.11	3.8
R. I.	52,480	24,711	2,953	2,302.01	.04	.5	25,640	4,994	1,928	1,519.04	.06	0.2
CONN.	17,215	289,034	2,447	5,981.73	.35	16.7	16,106	272,797	684	5,495.30	.34	16.9
N. Y.	25,198	1,061,368	2,501	40,907.02	1.62	42.1	34,937	994,865	1,153	35,787.36	1.02	28.4
PENNA.	–	–	–	–	–	–	–	–	–	–	–	–
ALL STATES	1,012,986	9,527,787	73,858	169,927.90	.17	9.4	834,894	7,346,289	59,458	138,802.49	.17	8.8

STATE	1926						1927					
	Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes		Wild	Cult.		Cost	Ribes
MAINE	304,437	3,106,579	17,562	21,280.01	.07	10.2	261,481	2,601,639	10,225	22,513.71	.09	9.9
N. H.	210,333	3,127,909	4,289	45,606.67	.22	14.9	226,019	2,672,166	2,510	41,072.84	.18	11.8
VT.	22,650	257,743	1,404	10,253.44	.45	11.4	19,405	280,781	314	8,233.95	.42	14.4
MASS.	189,230	1,088,039	25,596	27,281.37	.14	5.7	299,353	906,490	32,760	27,940.03	.09	3.1
R. I.	28,207	17,635	203	1,924.23	.07	0.6	9,735	22,279	521	1,700.86	.18	2.3
CONN.	22,257	182,826	330	5,062.35	.23	8.2	20,904	152,825	1,208	8,633.20	.41	7.3
N. Y.	38,073	1,077,340	2,087	37,129.76	.98	28.3	62,955	1,410,646	2,207	45,523.96	.72	22.4
PENNA.	–	–	–	–	–	–	–	–	–	–	–	–
ALL STATES	815,187	8,858,071	51,471	148,537.83	.18	10.9	899,852	8,046,826	49,745	155,618.55	.17	8.9

STATE	1928						1929					
	Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre	
		Wild	Cult		Cost	Ribes		Wild	Cult		Cost	Ribes
MAINE	203,067	1,595,792	8,778	22,597.90	.11	7.9	234,691	2,164,713	18,244	22,194.38	.10	9.2
N. H.	228,530	2,302,538	5,220	40,844.96	.18	10.1	252,144	2,102,999	6,644	40,609.40	.16	8.3
VT.	16,767	159,340	196	6,886.37	.41	9.5	13,300	110,671	453	6,495.47	.49	8.3
MASS.	242,933	523,400	34,153	29,769.26	.12	2.2	264,840	841,759	32,881	32,486.51	.12	3.2
R. I.	21,461	17,777	615	2,629.64	.12	0.8	–	–	–	–	–	–
CONN.	75,105	123,385	1,364	8,013.84	.11	1.6	34,597	134,407	10,922	8,034.54	.23	3.9
N. Y.	95,849	1,957,769	10,235	50,605.43	.53	20.4	127,756	1,982,671	6,745	65,466.48	.51	15.5
PENNA.	–	–	–	–	–	–	5,459	329,670	561	3,756.26	.69	60.4
ALL STATES	883,712	6,680,001	60,561	161,347.40	.18	7.6	932,787	7,666,890	76,450	179,043.04	.19	8.2

STATE	1930						1931					
	Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre	
		Wild	Cult		Cost	Ribes		Wild	Cult.		Cost	Ribes
MAINE	197,885	2,123,777	10,573	24,042.46	.12	10.7	116,709	1,356,418	4,980	19,824.78	.17	11.6
N. H.	224,870	2,840,230	3,197	48,596.21	.22	12.6	179,361	3,022,275	4,222	50,246.09	.28	16.9
VT.	13,122	94,611	108	5,903.71	.45	7.2	11,660	49,114	132	4,125.07	.35	4.2
MASS.	136,791	1,024,371	8,155	18,120.33	.13	7.5	115,529	264,215	6,658	13,116.83	.11	2.3
R. I.	–	–	–	–	–	–	–	–	–	–	–	–
CONN.	29,595	44,159	3,595	4,241.46	.14	1.5	6,050	110,827	260	4,735.90	.78	18.3
N. Y.	98,221	1,402,189	4,471	50,130.30	.51	14.3	123,558	1,502,930	5,023	56,764.66	.46	12.2
N. J.	–	–	–	–	–	–	–	–	–	–	–	–
PENNA.	11,745	656,768	863	8,631.48	.74	55.9	25,424	868,342	703	11,026.51	.43	34.2
ALL STATES	712,229	8,186,105	30,962	159,665.95	.22	11.5	578,291	7,174,121	21,978	159,839.84	.28	12.4

STATE	1932						1933					
	Acres	No. Ribes		Total Cost	Per Acre		Acres	No Ribes		Total Cost	Per Acre	
		Wild	Cult		Cost	Ribes		Wild	Cult.		Cost	Ribes
MAINE	81,587	1,022,986	4,726	19,266.99	.24	12.5	96,182	2,251,325	4,987	44,037.90	.46	23.4
N. H.	97,232	1,075,218	1,145	17,647.93	.18	11.1	98,528	4,694,066	757	56,444.82	.57	47.6
VT.	11,849	58,776	4,757	3,775.54	.32	5.0	27,219	323,145	228	19,292.47	.71	11.9
MASS.	161,606	334,353	3,071	16,637.41	.10	2.1	97,107	553,773	2,869	19,764.06	.20	5.7
R. I.	6,472	5,798	289	1,665.06	.26	0.9	5,313	3,588	86	4,530.60	.85	0.7
CONN.	7,337	134,456	1,216	4,592.40	.63	18.3	42,513	300,299	109	16,628.59	.39	7.1
N. Y.	155,897	1,295,653	6,538	53,486.93	.34	8.3	141,323	1,928,002	3,396	73,083.80	.52	13.6
N. J.	–	–	–	–	–	–	–	–	–	–	–	–
PENNA.	22,640	859,086	3,349	7,911.15	.35	37.9	44,670	2,696,645	263	51,845.38	1.16	60.4
ALL STATES	544,620	4,786,326	25,091	124,983.41	.23	8.8	552,855	12,750,844	12,695	285,627.62	.52	23.1

STATE	1934						1935					
	Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes		Wild	Cult.		Cost	Ribes
MAINE	118,719	4,171,084	2,546	63,349.88	.53	35.1	199,083	6,028,609	3,390	142,930.88	.72	30.3
N. H.	146,731	4,908,291	524	101,152.95	.69	33.5	50,881	732,466	320	39,758.96	.78	14.4
VT.	32,173	721,748	20	25,274.00	.79	22.4	112,331	1,382,212	17,261	71,640.36	.64	12.3
MASS.	123,132	1,091,090	3,172	25,766.19	.21	8.9	98,517	107,213	3,467	35,989.01	.37	1.1
R. I.	41,726	74,730	532	13,297.35	.32	1.8	104,548	1,138,198	6,782	57,232.66	.55	10.9
CONN.	72,587	860,580	1,276	34,088.43	.47	11.9	264,257	6,306,756	12,841	149,634.89	.57	23.9
N. Y.	264,257	6,306,756	12,841	149,634.89	.57	23.9	324,956	7,565,076	13,850	257,677.11	.79	23.3
N. J.	12,695	22,322	1,163	89,693	.07	1.8	1,482	18,663	351	2,096.33	1.41	12.6
PENNA.	61,339	5,996,426	2,386	99,861.62	1.63	97.8	86,669	6,948,081	9,667	144,051.91	1.66	80.2
ALL STATES	813,073	23,133,684	23,944	464,548.95	.57	28.5	1,125,198	28,828,809	55,612	852,530.17	.76	25.6

STATE	1936						1937					
	Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre	
		Wild	Cult		Cost	Ribes		Wild	Cult		Cost	Ribes
MAINE	357,436	13,576,831	13,221	233,842.09	.65	38.0	112,399	3,251,278	1,375	69,541.18	.62	28.9
N. H.	306,887	10,064,507	5,745	206,376.29	.67	32.8	102,133	2,532,303	1,432	59,421.05	.58	24.8
VT.	113,154	4,994,198	2,385	129,586.94	1.15	44.1	48,674	1,287,720	958	35,484.35	.73	26.5
MASS.	127,805	1,903,930	3,918	96,391.29	.75	14.9	56,985	856,508	1,091	29,582.77	.52	15.0
R. I.	96,442	89,259	4,764	33,912.71	.35	0.9	37,749	53,111	511	14,673.42	.39	1.4
CONN.	78,974	657,567	3,794	46,323.98	.59	8.3	57,859	212,695	934	23,347.48	.40	3.7
N. Y.	544,857	15,946,283	26,237	522,649.80	.96	29.3	210,947	6,121,640	5,032	184,361.83	.87	29.0
N. J.	2,565	6,795	199	2,291.07	.89	2.6	1,417	16,956	15	1,631.36	1.15	12.0
PENNA.	156,258	8,429,377	13,663	247,968.31	1.59	53.9	88,559	3,071,039	9,778	111,397.19	1.26	34.7
ALL STATES	1,784,378	55,668,747	73,926	1,519,342.48	.85	31.2	716,722	17,403,250	21,126	529,440.63	.74	24.3

STATE	SUB-TOTALS 1918-1937 INCLUSIVE						1938					
	Acres		No. Ribes		Total Cost	Per Acre	Acres	No. Ribes		Total Cost	Per Acre	
	As Reported	As Adjusted*	Wild	Cult		Cost	Ribes		Wild	Cult		Cost	Ribes
MAINE	3,666,872	2,648,961	49,125,301	144,609	795,827.47	.30	18.5	115,978	2,763,035	3,018	80,184.17	.69	23.8
N. H.	3,769,956	3,769,956	62,273,180	152,441	1,060,413.36	.28	16.5	81,194	1,761,968	561	48,323.39	.60	21.7
VT.	489,844	489,844	10,322,923	14,835	342,309.59	.70	21.1	48,721	1,129,733	1,410	37,568.58	.77	23.2
MASS.	2,630,729	2,630,729	19,316,280	271,572	551,490.75	.21	7.3	117,774	924,695	4,071	51,051.70	.43	7.9
R. I.	569,811	569,811	528,376	21,716	134,641.44	.24	0.9	18,218	43,466	1,374	8,755.17	.48	2.4
CONN.	619,354	619,354	5,165,152	35,177	251,288.61	.41	8.3	66,717	658,414	2,811	44,926.67	.67	9.9
N. Y.	2,349,425	2,349,425	57,228,974	116,426	1,903,534.72	.81	24.4	212,753	3,768,812	5,308	165,024.62	.78	17.7
N. J.	18,159	18,159	64,736	1,728	6,915.69	.38	3.6	–	–	–	–	–	–
PENNA.	502,763	502,763	29,855,435	41,233	686,443.81	1.37	59.4	80,214	2,749,657	3,528	103,164.44	1.29	34.3
ALL STATES	14,616,913	13,599,002	233,880,357	799,737	5,732,871.44	.42	17.2	741,569	13,799,780	22,081	538,998.74	.73	18.6

STATE	1939					
	Acres	No. Ribes		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
MAINE	89,037	2,563,848	2,431	61,987.34	[illegible]	28.8
N. H.	74,719	1,762,652	1,425	49,293.81	.66	23.6
VT.	31,450	1,444,430	446	29,736.85	.95	45.9
MASS.	109,217	1,089,036	2,662	47,826.75	.44	10.0
R. I.	5,169	12,306	380	4,979.22	.96	2.4
CONN.	58,517	588,199	657	27,629.68	.47	10.1
N. Y.	231,857	3,764,602	8,632	158,443.19	.68	16.2
N. J.	–	–	–	–	–	–
PENNA.	100,175	2,296,525	2,854	103,943.99	1.04	22.9
ALL STATES	700,141	13,521,598	19,487	483,840.83	.69	19.3

STATE	GRAND TOTALS 1918-1939 INCL.				
	Acres	No. Ribes		Total Cost	Per Acre
		Wild	Cult		Cost	Ribes
MAINE	2,853,976	54,452,184	150,058	937,938.98	.33	19.1
N. H.	3,925,869	65,797,800	154,427	1,158,030.56	.29	16.8
VT.	570,015	12,897,086	16,691	409,615.02	.72	22.6
MASS.	2,857,720	21,330,011	278,305	650,369.20	.23	7.5
R. I.	593,198	584,148	23,470	148,375.83	.25	1.0
CONN.	744,588	6,411,765	38,645	323,844.96	.43	8.6
N. Y.	2,794,035	64,762,388	130,366	2,227,002.53	.80	23.2
N. J.	18,159	64,736	1,728	6,915.69	.38	3.6
PENNA.	683,152	34,901,617	47,615	893,558.24	1.31	51.1
ALL STATES	15,040,712	261,201,735	841,305	6,755,711.01	.45	17.4

*ADJUSTMENTS MADE IN TOTAL ACREAGE FIGURES FOR PERIOD 1918-1937, INCLUSIVE:

MAINE – 1,017,911 ACRES DEDUCTED FROM TOTAL OF YEARLY ACREAGES REPORTED UP TO 1937 INCLUSIVE. THIS REDUCTION REPRESENTS ELIMINATED AREA THAT WAS INCLUDED IN ORIGINAL ACREAGE FIGURES FOR YEARS 1921-1930, INCLUSIVE, WHEN THE CONTROL WORK WAS PERFORMED ON THE OWNER-LABOR AND SCOUTING BASIS. THESE ELIMINATED AREAS DID NOT CONTAIN SUFFICIENT PINE TO JUSTIFY CONTROL WORK.

Table 95 - Ribes Eradication Work Performed on Federal Lands in Northeastern States During Period 1924-1939, Inclusive (Regular and C.C.C. Programs).

Project	Type of Erad.	Total Acreage Worked	Ribes Pulled		Total Man Days	Cost						Per Acre		
			Wild	Cult.		C.C.C.	B.P.I.	Forest Service	Park Service	State	Total	Cost	Ribes	Man Days
Acadia	Initial	20,668	893,137	293	11,218	13,468.20	3145.83	-	8345.53	-	24,959.56	1.21	43.2	.54
National	Re-Erad.	9,407	35,191	-	3,562	5,988.71	-	-	-	-	5,988.71	.637	3.7	.38
Park,Me.	Total	30,075	928,328	293	14,780	19,456.91	3145.83	-	8345.53	-	30,948.27	1.03	30.9	.49
White Mt.	Initial	-	-	-	-	-	-	-	-	-	-	-	-	-
National	Re-Erad.	85	3,754	-	47	-	-	141.25	-	-	141.25	1.66	44.2	.55
Forest,Me.	Total	85	3,754	-	47	-	-	141.25	-	-	141.25	1.66	44.2	.55
White Mt.	Initial	8,729	816,274	85	2,879	3,423.74	75.63	1471.62	-	224.11	5,195.10	.595	93.5	.33
National	Re-Erad.	8,893	320,324	-	1,869	2,811.47	-	495.20	-	133.50	3,440.17	.387	36.0	.21
Forest,N.H.	Total	17,622	1,136,598	85	4,748	6,235.21	75.63	1966.82	-	357.61	8,635.27	.490	64.5	.27
Sub-Totals	Initial	8,729	816,274	85	2,879	3,423.74	75.63	1471.62	-	224.11	5,195.10	.595	93.5	.33
White Mt. National Forest	Re-Erad.	8,978	32[illegible]	-	1,916	2,811.47	-	636.45	-	133.50	3,581.42	.399	56.1	.21
	Total	17,707	1,140,352	85	4,795	6,235.21	75.63	2108.07	-	357.61	8,776.52	.496	64.4	.27
Allegheny	Initial	4,158	759,375	30	2,259	3,166.92	136.56	507.71	-	-	3,811.19	.917	182.6	.54
National	Re-Erad.	1,152	61,061	-	541	646.41	71.29	272.06	-	-	989.76	.859	53.0	.47
Forest,Pa.	Total	5,310	820,436	30	2,780	3,813.33	207.85	779.77	-	-	4,800.95	.904	154.5	.52
Totals	Initial	33,555	2,468,786	408	16,336	20,058.86	3358.02	1979.33	8345.53	224.11	33,965.85	1.01	73.6	.48
	Re-Erad.	19,537	420,330	-	6,019	9,446.59	71.29	908.51	-	133.50	10,559.89	.540	21.5	.31
	Total	53,092	2,889,116	408	22,355	29,505.45	3429.31	2887.84	8345.53	357.61	44,525.74	.839	54.4	.42

Table 95 - Total Control Area and Acreage of White Pine in Control Area in Each of the Northeastern States.

	Acreage of Present Control Area			Acreage of White Pine In Present Control Area		
	In Townships Comprising Permanent Pine Production Area	In Townships Outside Permanent Pine Production Area	Total	In Townships Comprising Permanent Pine Production Area	In Townships Outside Permanent Pine Production Area	Total
	2,505,323	267,314	2,772,637	982,213	95,817	1,078,030
	3,185,640	0	3,185,640	1,448,059	0	1,448,059
	846,335	25,281	871,616	181,196	4,504	185,700
	1,804,291	60,836	1,865,127	722,661	19,524	742,185
	333,766	0	333,766	90,866	0	90,866
	367,723	136,014	503,737	81,975	14,083	96,058
	2,841,116	84,167	2,925,283	862,909	14,412	877,321
	16,742	18,900	35,642	3,771	2,700	6,471
	1,050,690	108,294	1,158,984	168,032	7,842	175,874
	12,951,626	700,806	13,652,432	4,541,682	158,882	4,700,564

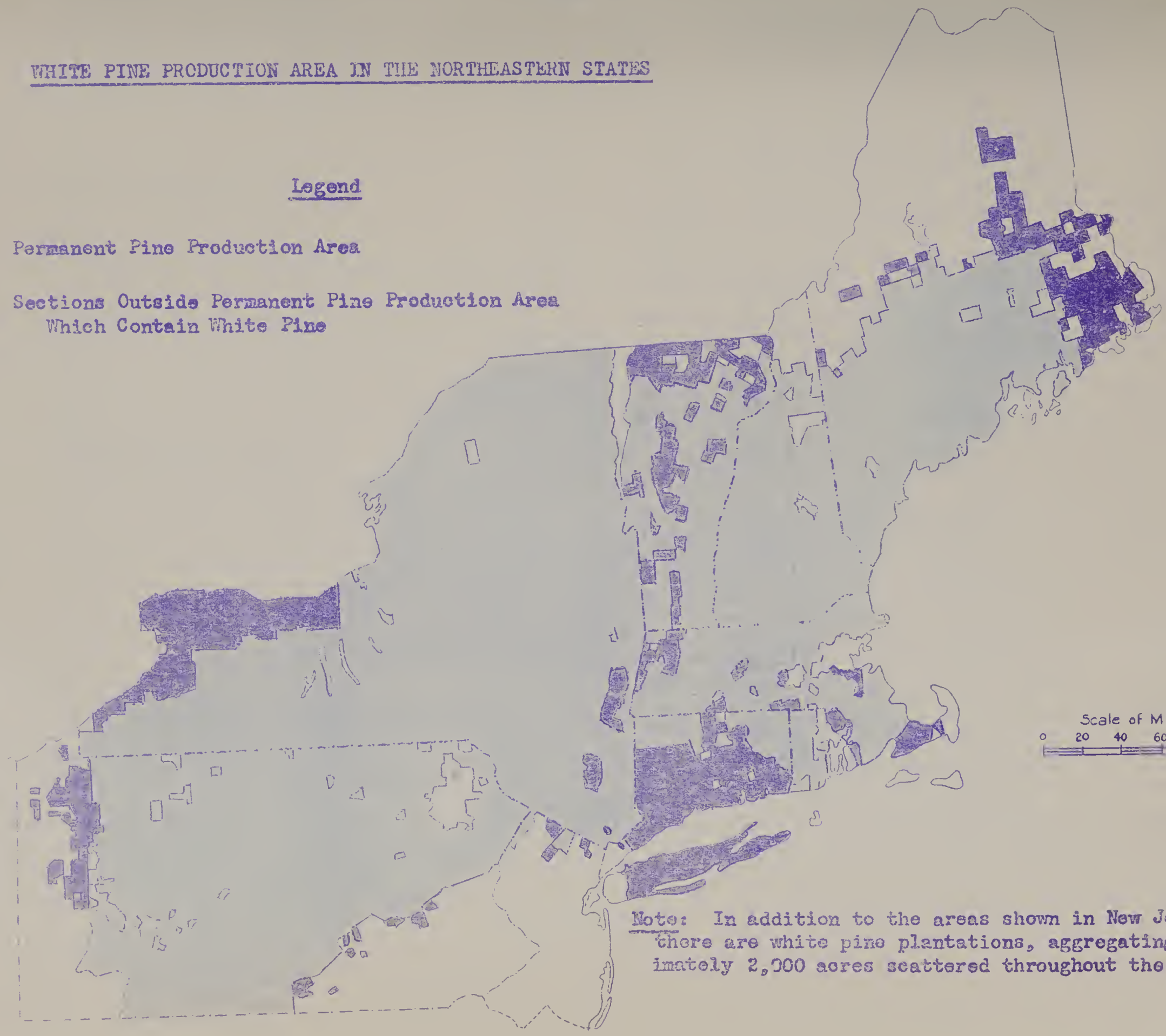
The figures on white pine acreages in Table 96 are based on pine maps where available (see Page 157) and on estimates for the remaining portions. There is, in addition, a large acreage containing a mixed growth of white pine below minimum stocking requirements for protection, namely: 50 pines per acre for trees over 6 inches D.B.H., 100 trees per acre for pines 3-6 inches D.B.H., and 300 trees per acre in the under 3 inches D.B.H. class. Generally speaking, mixed types with less than 30% white pine were excluded from the control areas. However, in New Hampshire where the Ribes eradication is conducted under town cooperation in block units, mixed types with 20 or more percent white pine were frequently included in the control areas. The acreage of white pine in the control area in Rhode Island includes thousands of acres of pine reproduction in hardwoods and brush. Although the existing pines on many of these tracts do not meet the minimum requirements as set up for the Region, the present stocking on these potential pine areas is considered of sufficient value to justify the cost of control measures, since the Ribes are few and concentrated in definite types.

WHITE PINE PRODUCTION AREA IN THE NORTHEASTERN STATES

Legend

= Permanent Pine Production Area

= Sections Outside Permanent Pine Production Area Which Contain White Pine



Note: In addition to the areas shown in New Jersey, there are white pine plantations, aggregating approximately 2,000 acres scattered throughout the state.

Table 97 - Status of Ribes Eradication Work in Northeastern States

Initial Control Work

State	Reported Acreage of Initial Control Work	Acreage of Present Control Area Initially Protected*	Acreage Still Needing Initial Protection	Percentage of Control Area Initially Protected
Maine	2,251,444	2,056,668	715,969	74.2
N.H.	3,136,388	2,934,029	251,611	92.1
Vt.	434,618	434,618	436,998	49.9
Mass.	1,987,361	1,856,689	8,438	99.5
R. I.	322,337	315,948	17,818	94.7
Conn.	427,706	427,706	76,031	84.9
N. Y.	2,189,605	1,974,475	950,808	67.5
N. J.	16,742	16,742	18,900	46.9
Pa.	501,514	465,823	693,161	40.2
Totals	11,297,715	10,482,698	3,169,734	76.8

*These figures are smaller than the total of yearly reported acreages of initial control work due to the elimination of many pine lots which were burned over or cut off subsequent to the initial Ribes eradication work.

The total acreage of initial work still to be done in each state was compiled by deducting the acreage worked during 1939 from the township estimates submitted by the state and district leaders during December, 1935.

Re-Eradication Work

State	Total Acreage of Re-Eradication Work Reported 1918-1939, Incl.	Percentage of Total Control Area That Has Been Re-Worked	Percentage of Control Area in Permanent Pine Reduction Area That Has Been Re-Worked
Maine	572,532	20.6	22.9
N.H.	789,481	24.8	24.8
Vt.	135,397	15.5	16.0
Mass.	870,359	46.7	48.2
R. I.	270,861	81.2	81.2
Conn.	316,882	62.9	86.2
N. Y.	604,430	20.7	21.3
N. J.	1,417	4.0	8.5
Pa.	181,638	15.8	17.3
Totals	3,742,997	27.4	28.9

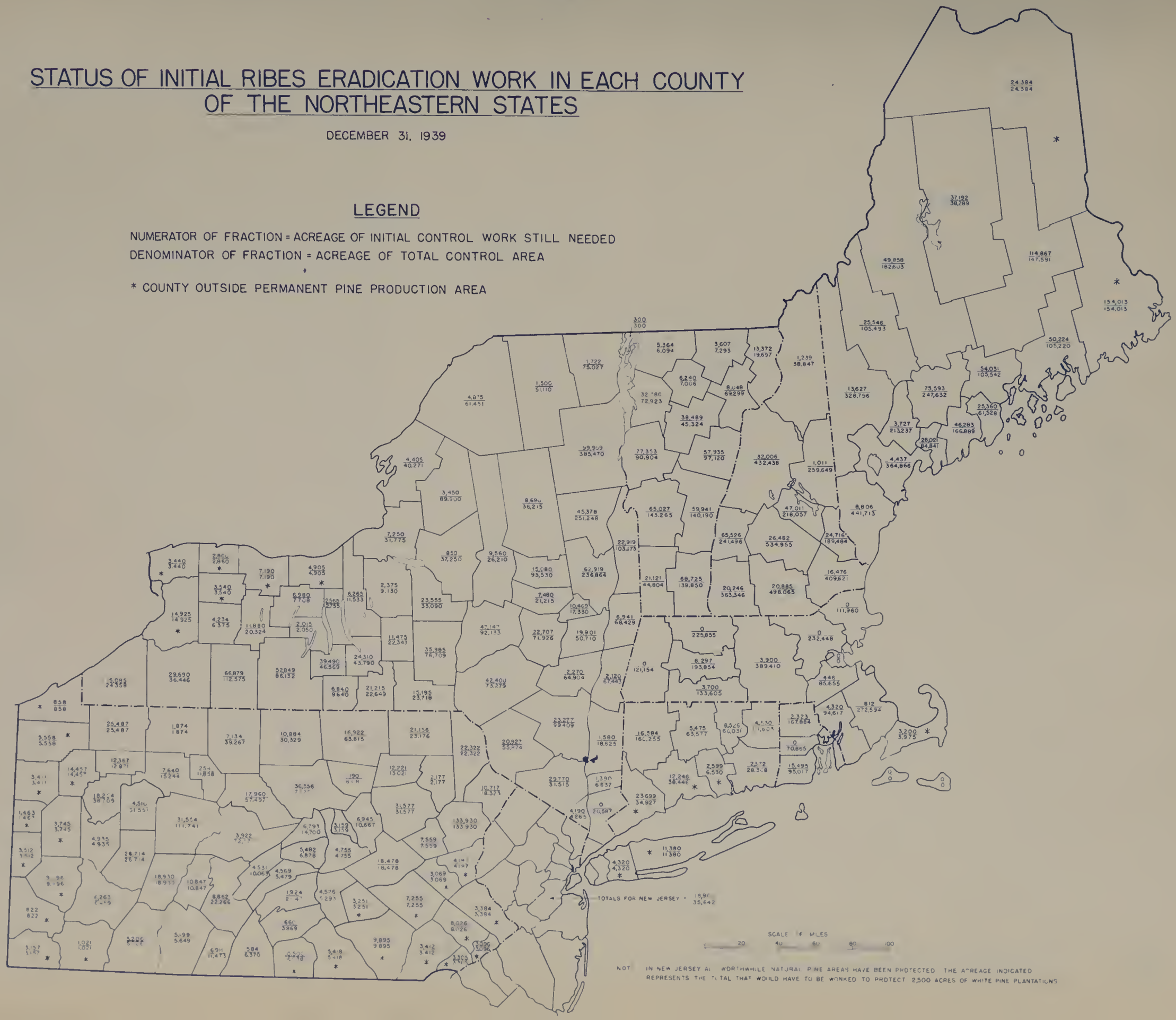
STATUS OF INITIAL RIBES ERADICATION WORK IN EACH COUNTY OF THE NORTHEASTERN STATES

DECEMBER 31, 1939

LEGEND

NUMERATOR OF FRACTION = ACREAGE OF INITIAL CONTROL WORK STILL NEEDED
DENOMINATOR OF FRACTION = ACREAGE OF TOTAL CONTROL AREA

* COUNTY OUTSIDE PERMANENT PINE PRODUCTION AREA



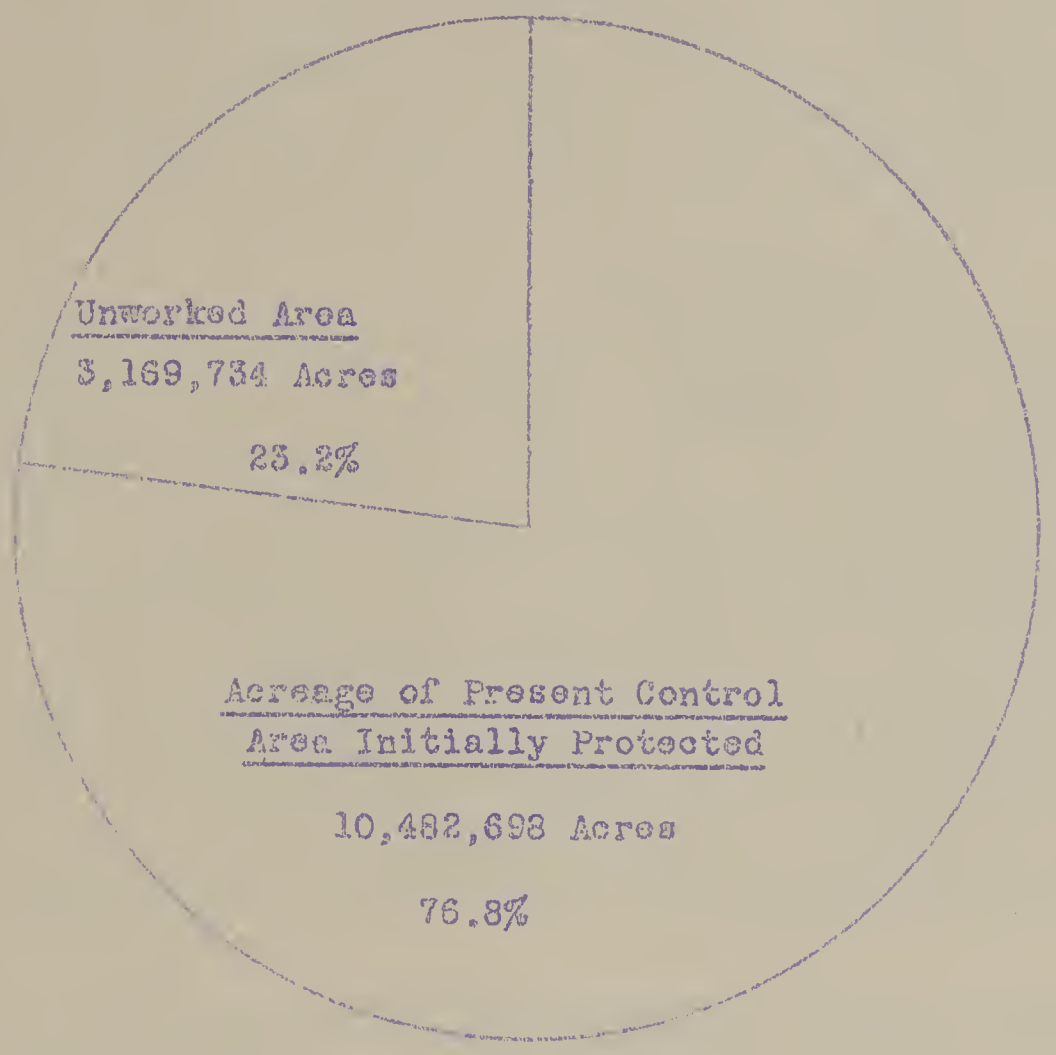
NOTE IN NEW JERSEY ALL WORTHWHILE NATURAL PINE AREAS HAVE BEEN PROTECTED THE ACREAGE INDICATED REPRESENTS THE TOTAL THAT WOULD HAVE TO BE WORKED TO PROTECT 2,500 ACRES OF WHITE PINE PLANTATIONS

STATUS OF INITIAL WHITE PINE ERADICATION WORK IN NORTHEASTERN STATES

DECEMBER 1959

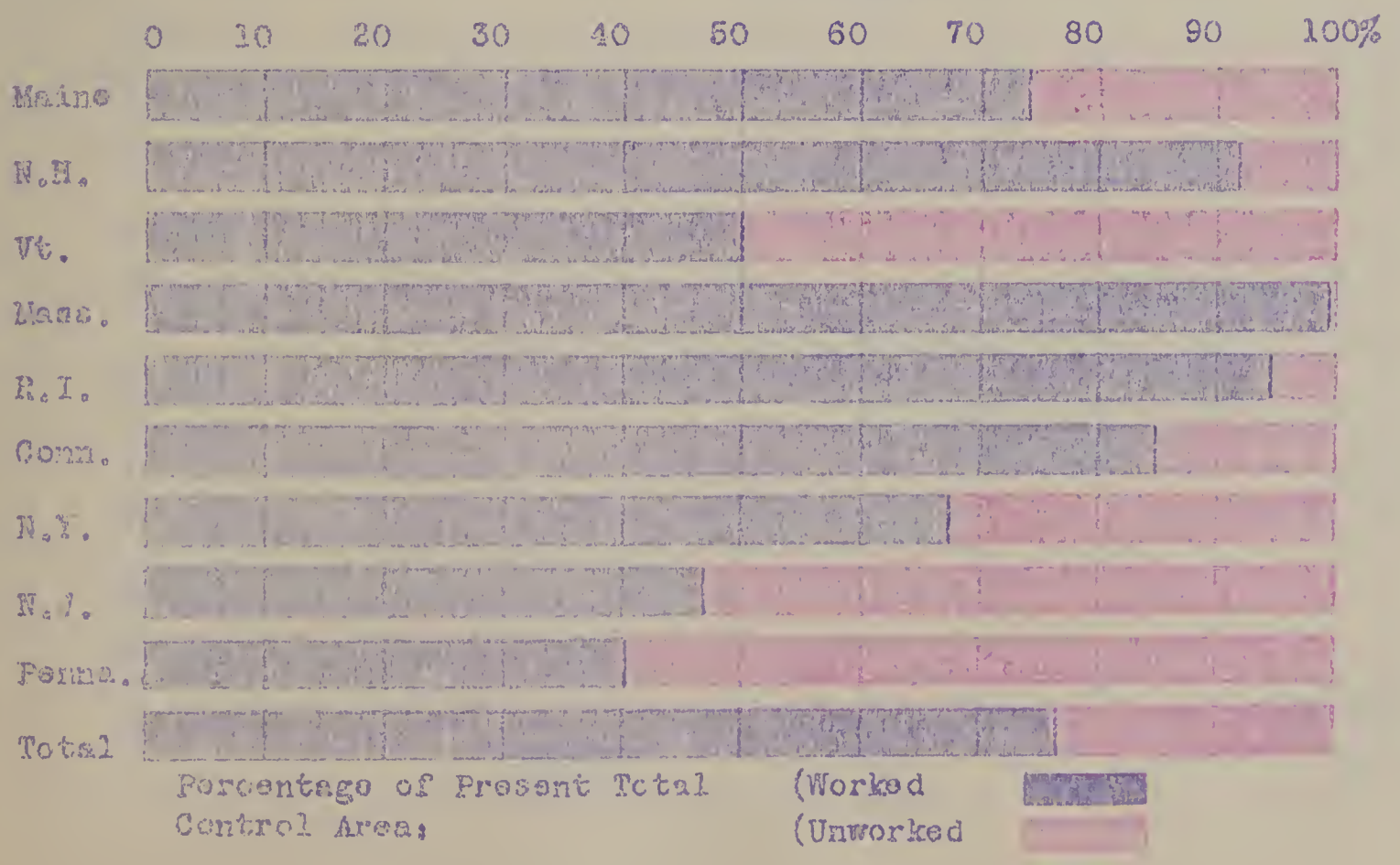
(Excludes Special Nursery Sanitation and Black Current Elimination Projects)

ALL STATES



Present Total Control Area - 13,652,432 Acres

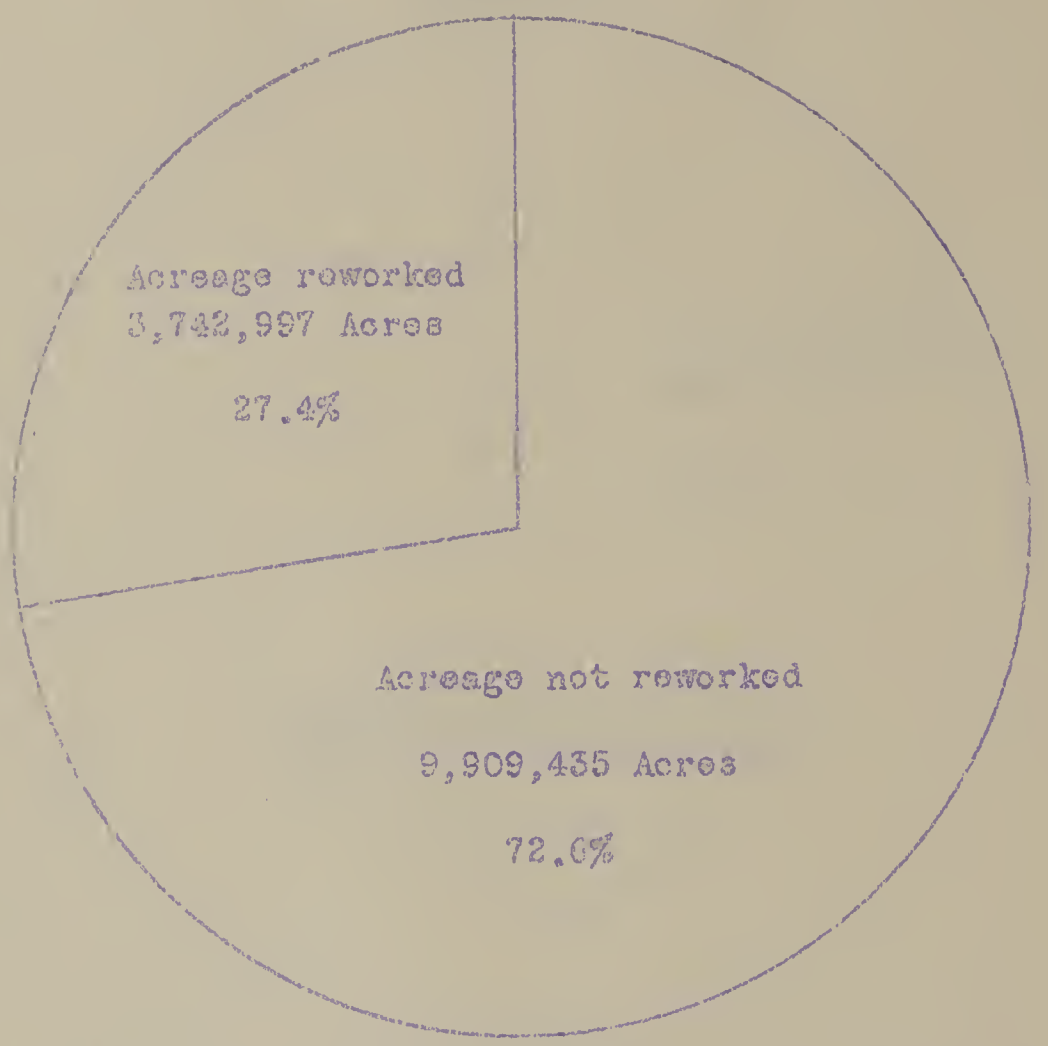
BY STATES



	Acreage of Present Total Control Area
Maine	2,772,637
N.H.	3,186,640
Vt.	871,616
Mass.	1,865,127
R.I.	333,766
Conn.	503,737
N.Y.	2,925,283
N.J.	35,642
Penna.	1,158,984
Total	13,652,432

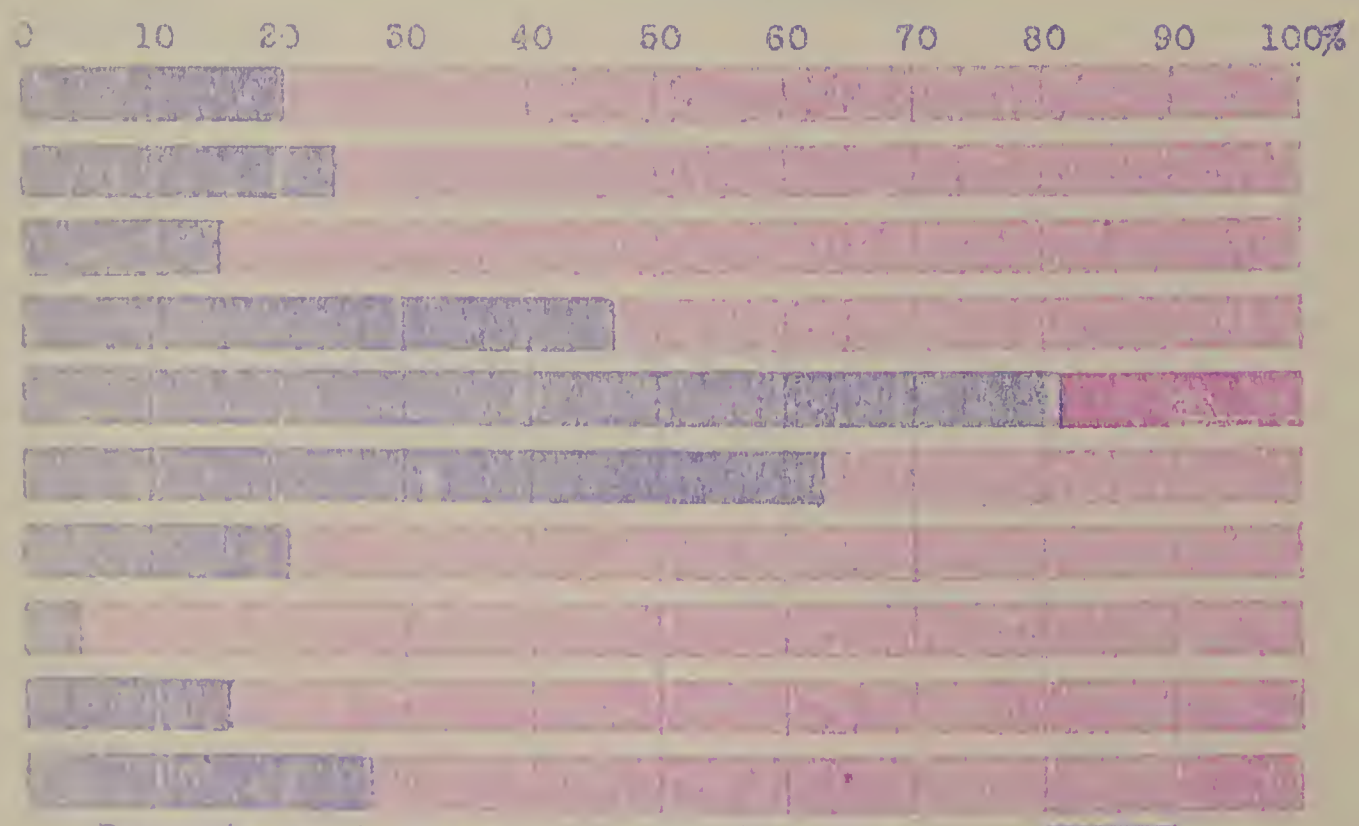
Status of White Pine Blister Rust Control Work in Northeastern States, December, 1939.
(Continuous Special Survey Eradication and Ribes Current Elimination Projects)

ALL STATES



Present Total Control Area - 13,652,452 Acres

BY STATES



	Acreage of Present Total Control Area
Maine	2,772,637
N.H.	3,185,640
Vt.	871,616
Mass.	1,865,127
R.I.	333,766
Conn.	503,737
N.Y.	2,925,283
N.J.	35,642
Penna.	1,158,984
Total	13,652,432

FIELD STUDIES IN NORTHEASTERN STATES TO DETERMINE EFFECTIVENESS OF WHITE PINE BLISTER RUST CONTROL WORK

During 1934, plot and strip-line studies were made by the district blister rust control leaders to determine the effectiveness of blister rust control work by ascertaining infection conditions on white pines in protected and unprotected areas in six of the Northeastern States. The disease had existed in these tracts since 1914, and Ribes eradication in the control areas had been limited to initial work performed during the period 1923-1930, inclusive.

Similar plot studies were also made in five of the Northeastern States during the latter part of 1937. In most instances, W.P.A. laborers were used to obtain the desired pine infection data. The majority of these men had no previous experience in this type of work, and it was necessary to give them special training in the identification of blister rust infections and the method of determining the age of such cankers. The district leaders spent as much time as possible supervising these 1937 studies. Field inspections showed that, in a few cases, the W.P.A. personnel had difficulty in determining the age of the cankers, especially on suppressed pines. In such instances, the cankers would actually be older than the dates recorded. Consequently, some of the infections listed as originating subsequent to the Ribes eradication work may have developed prior to that time. Therefore the control work in the areas studies during 1937 undoubtedly was even more effective than the results indicate. The following basic requirements were established for the selection of the 1937 study plots:

(1) Use representative areas, making no attempt to "hand-pick" the location of the plots.

(2) Select sites containing pines chiefly under 25 feet in height, so they can be effectively examined.

(3) Lay out plots in protected areas worked during the period 1922-1934. Do not make studies in areas examined for Ribes subsequent to 1934, since most of the infections that may have developed after that year would not be recognizable.

(4) Select plots which contain some cankers originating prior to the application of control measures. Otherwise, there would be nothing to show the control work had been effective in checking the disease.

(5) Locate study plots in pine areas having 600-900 foot protection zones.

The following information was recorded for each pine: height; D.B.H; dominance class; condition, with respect to blister rust infection; and the age of each blister rust canker. Each canker was classified according to the age of the wood on which the infection originated.

Pine Infection Conditions in Protected Areas

In the protected areas examined during 1934, 37 plots comprising 72.6 acres, were laid out in 26 towns in four states. Out of a total of 19,835 pines examined, 4,435, or 22.4%, were infected with 9,096 blister rust cankers. Even though the protection work had been conducted 4 to 11 years previous to 1934, only 2.2% of the total diseased trees became infected for the first time after the areas were cleared of Ribes, and only 2.2% of the total cankers originated after that time. Infection conditions in protected areas were also determined in 23 towns in two states by examining all pines under 25 feet in height on 13 miles of rod-wide strip lines. A total of 5,530, or 35% of the 15,808 pines on the strips, were infected with 7,847 cankers. Only 1.8% of these diseased pines became infected for the first time after the application of control measures, and only 2.3% of the cankers originated after protection was established.

Ninety one plots, aggregating 87½ acres, were examined in protected areas in 58 townships in five states during 1937. These plots contained 66,713 white pines, and 11,653, or 17.5% of the trees were infected with 15,567 blister rust cankers, 10.2% of which originated after the areas were examined for Ribes from 3 to 16 years prior to 1937. Only 8.7% of the total diseased pines became infected for the first time after control measures were applied.

Table 96 - Summary of Pine Infection Conditions in Protected Areas

Year of Study	No. Towns	No. Plots	Miles Strip Line	Acreage of Plots and Strip Lines	Total No. Pines Examined	Total No Inf. Pines	% Total Pines Inf.	Number of Blister Rust Cankers: Orig. Before Control	Orig. After Control	Total	No. of Cankers Per 100 Trees Examined: Orig. Before Control	Orig. After Control	Total
1934	26	37	-	72.6	19,835	4435	22.4	8,892	204	9096	44.8	1.0	45.8
[illegible]	23	-	13	26.0	15,808	5530	35.0	7,662	185	7847	48.5	1.1	49.6
1937	58	91	-	87.5	66,713	11,653	17.5	13,977	1,590	15,567	20.9	2.4	23.3
Totals	107	128	13	186.1	102,356	21,618	21.1	30,531	1,979	32,510	29.8	2.0	31.8

Pine Infection Conditions in Unprotected Areas

During 1934, studies were made on 45 plots, totalling 31.2 acres, in unprotected areas in 35 townships of six states. Blister rust had infected 8,760 or 49.9% of the 17,569 white pines examined. The danger of delaying control measures is clearly indicated by the fact that 69.73% of the 22,238 blister rust cankers on these unprotected areas developed during the period 1927-1934.

In the unprotected areas studied during 1937, a total of 68 plots, comprising 85¼ acres, were laid out in 61 townships in five of the Northeastern States. Out of the total of 68,829 pines examined, 14,132, or 20.5%, of the trees were infected with 23,108 blister rust cankers. Over 54% of these cankers originated after 1930.

Table 39 - Summary of Pine Infection Conditions in Unprotected Areas

Year of Studies	No. Towns	No. Plots	Acreage of Plots	Total No. Pines Examined	Total No. Pines Infected	Percent Total Pines Infected	Total No. Blister Rust Cankers	No. Cankers Per 100 Trees Examined
1934	35	45	31.2	17,569	8,760	49.9	22,238	126.6
1937	61	88	85.25	68,829	14,132	20.5	23,108	33.6
Totals	96	133	116.45	86,398	22,892	26.5	45,346	52.5

Comparison of Pine Infection Conditions in Protected and Unprotected Areas

A comparison of pine infection conditions for the plots in the protected and unprotected areas studied in 1934 shows that 49.9% of the pines in the latter plots were diseased as against 22.4% in the protected areas, while the percentages for the 1937 plots were 20.5% and 17.5% respectively. The difference of only 3.0 in the percentage of pines infected in the two classes of 1937 study plots is principally due to the fact that most of the heavily infected areas in this Region have now been protected. It is extremely difficult to find suitable study plots in unworked areas in some of the districts, where the initial control work has been completed in the majority of the townships. Another factor to be considered in comparing infection conditions in the two types of areas is that 93.9% of the infections in the protected plots took place prior to the application of control - see data under heading "Effectiveness of Control."

There were 31.6 blister rust cankers per hundred trees examined on all of the 1934 and 1937 study plots in protected areas as compared with 52.5 cankers per hundred trees in the unprotected tracts. On this basis, the infection was 65.1% greater on the unworked areas. A similar comparison for the 1934 plots only shows 45.8 and 126.6 cankers per hundred trees, respectively. On these 1934 study areas, pine infection was over 176% greater on the unprotected plots.

Effectiveness of Control Work

The effectiveness of the control work in the study areas is evidenced by an analysis of the infection data to show the percentage of the total pines which became infected for the first time after control work, and the percentage of the total cankers which originated after the areas were examined for Ribes, thus:

Year of Studies	No. of Plots	Miles of Strip Line	Percentage of Diseased Pines Infected For First Time After Control Work	Percentage of Total Cankers Which Originated After Control Work
1934	37	-	2.2	2.2
1934	-	13	1.8	2.3
1937	91	-	8.7	10.2
Totals	128	13	7.2	6.1

The 1937 studies included four plots in one state, which undoubtedly did not receive adequate protection. These four areas were examined for Ribes prior to 1929 when the control work was performed by owners' labor. In some instances, the cooperators would not work adequate protection zones on the properties of adjacent owners; consequently, the pines did not receive adequate protection. By eliminating the data for these four plots, the percentage of diseased pines infected for the first time after control work was performed in the 1937 study areas is reduced to 6.0% and the percentage of the total cankers originating after control work is reduced to 7.7%.

An analysis of the infection data, by years, for the 1937 plot studies in areas cleared of Ribes during the period 1928-1934, inclusive, indicates further the effectiveness of the control work:

Year of Control Work	No. of Plots	Percentage of Diseased Pines Infected For First Time After Control Work	Percentage of Total Cankers Originating After Control Work
1928	8	13.3	14.9
1929	10	5.5	6.2
1930	14	4.1	5.0
1931	15	8.2	11.7
1932	14	7.1	7.7
1933	13	4.9	6.3
1934	5	0	0
Totals	82	6.7	8.2

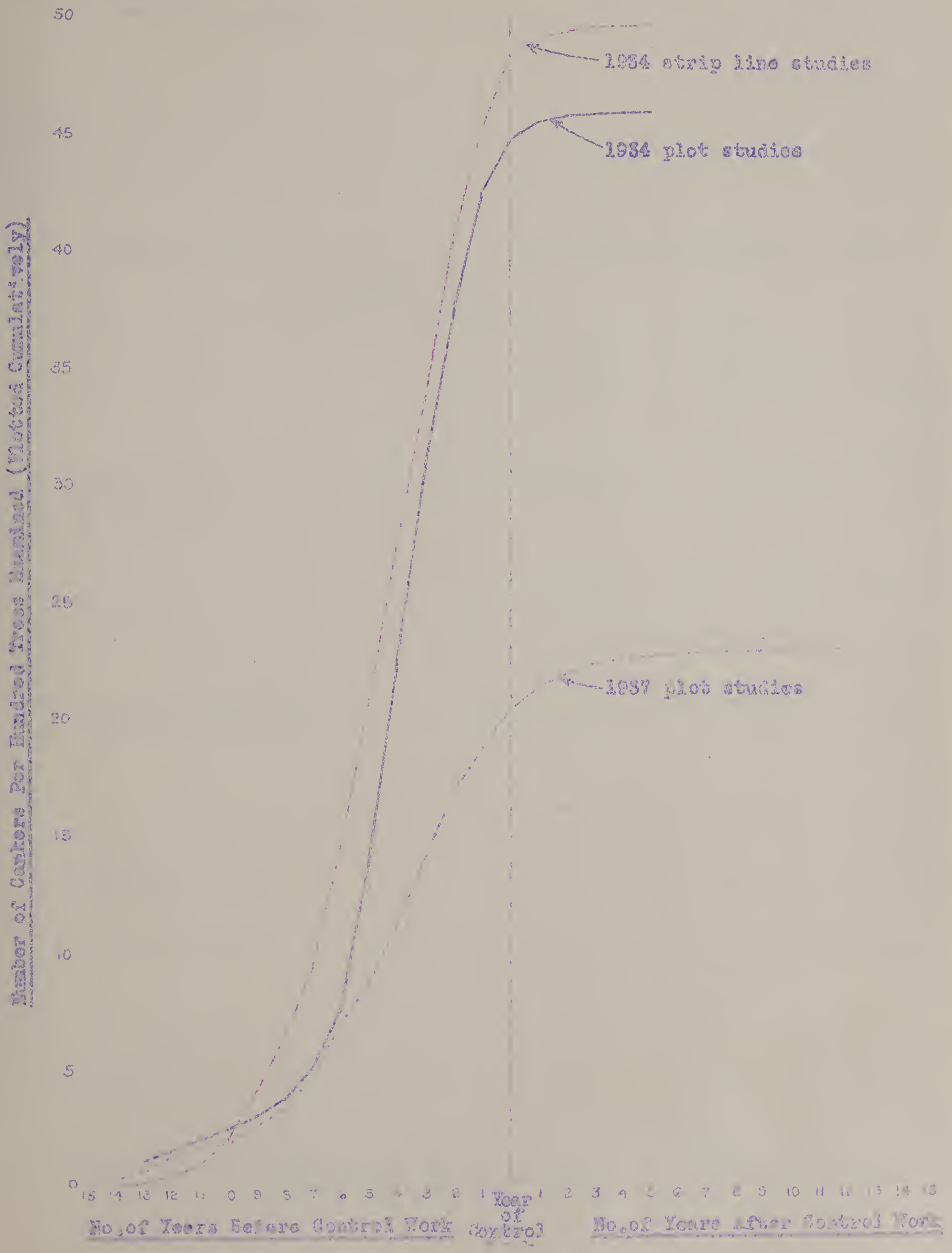
In addition to the 82 plots in the above summary, there were 9 plots laid out in areas protected before 1928. Of the 5,753 pines on these 9 plots, 1,009, or 17.5%, were infected with a total of 1,348 blister rust cankers. Nearly 32% of the total cankers on these nine plots originated subsequent to Ribes eradication work. The results of the studies in these early control areas cannot be considered representative of general conditions, as insufficient plots were studied from which to draw any definite conclusions. However, the data do indicate that re-eradication work was delayed too long in these nine areas.

The chart on Page 143 is a graphic summary of the relative number of blister rust infections accumulated per hundred trees examined in the protected areas studied during 1934 and 1937. The data were computed on this basis to secure uniformity of comparison among plots with varying numbers of trees and varying acreages. This chart shows definitely that control work checked the spread of blister rust infection. It is apparent that, based on totals, the 1934 studies were made in areas where infection reached a much higher point prior to the date of Ribes eradication than was attained in the 1937 study areas. Irrespective of the amounts of infection occurring prior to control work, there was in all cases a definite drop in new infections after that date.

The effectiveness of control work is also depicted by the chart on Page 144 which shows the actual number of infections found on both the protected and unprotected plots examined during 1934 and 1937. The numbers of infections have been accumulated, by five year periods, which smooths out some of the irregularities occurring in a similar graphic analysis, by one year intervals. Up to 1930, there is very little difference in the general trends of the lines for all of the study plots, but after that date there is a marked reduction in the number of new infections in the protected areas.

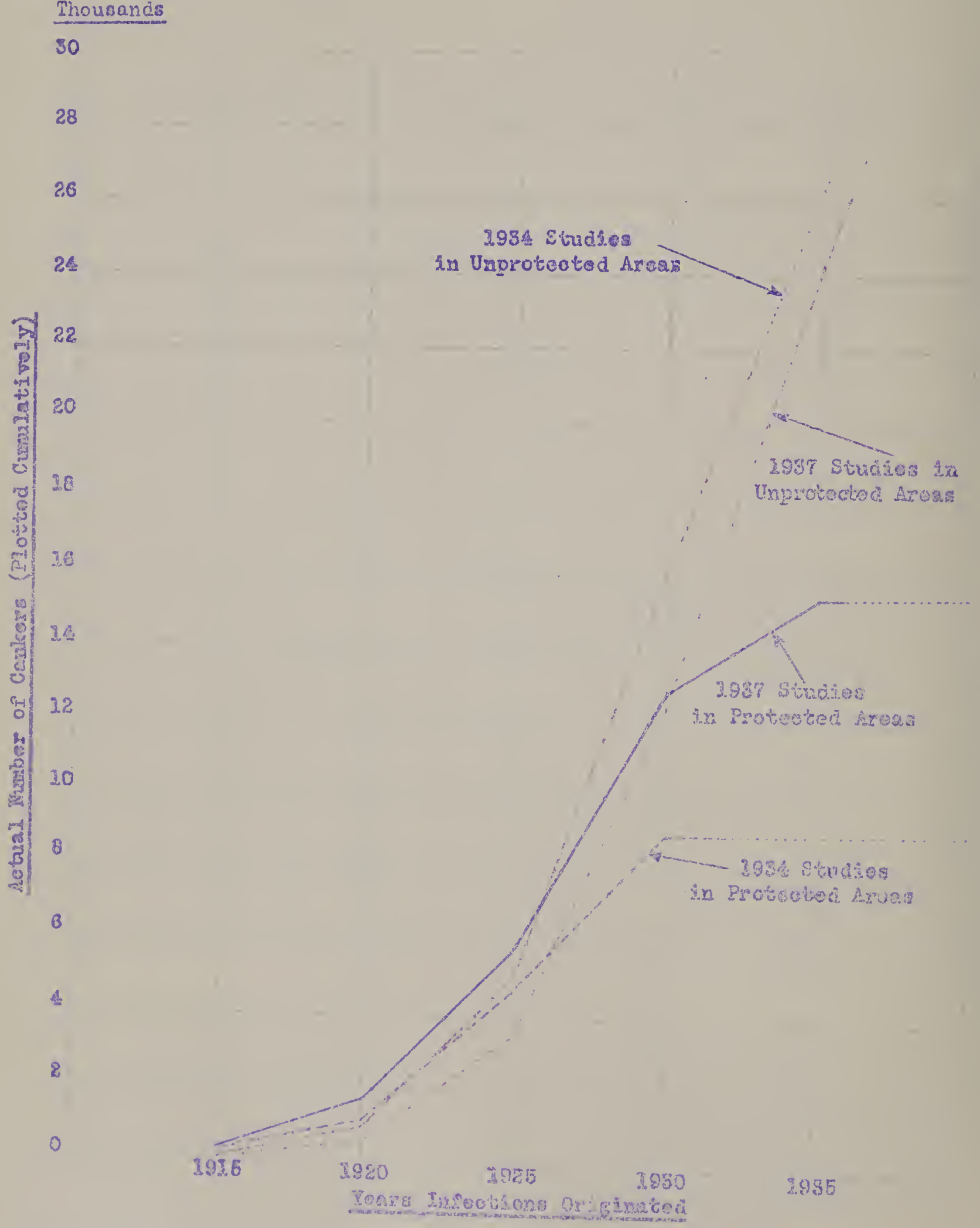
EFFECTIVENESS OF RIBES ERADICATION IN CONTROLLING BLISTER RUST INFECTION ON WHITE PINES

(Based on cankers per hundred trees (plotted cumulatively) according to the year of origin in relation to the time when control work was performed on the areas studied during 1934 and 1937 - see Table 96 for detailed information on study plots and strip lines).



BLISTER RUST INFECTION ON WHITE PINES IN PROTECTED AND UNPROTECTED STUDY AREAS

(Based on actual number of infections according to years of origin and plotted cumulatively for 1934 and 1937 plot studies only - infections grouped by five-year periods. See Tables 98 and 99 for detailed information on study plots).



The results of these plot and strip line studies speak for themselves. However, the conclusions may be summarized briefly, as follows:-

(1) The studies show that ordinary Ribes eradication work, such as performed in the representative plots, has been effective in controlling the rust.

(2) To control the disease, it is essential that the Ribes be removed from adequate protection zones.

(3) Reworking of areas should not be delayed too long if control is to be maintained effectively. (Areas should be inspected at intervals of 3 to 5 years to ascertain if Ribes re-growth is a menace to the pines).

(4) Blister rust infection is rapidly increasing in unprotected areas.

Table 100 - Summary of Nursery Sanitation Work Under All Programs in Northeastern States During Period 1930-1939, Inclusive.

By States

State	Type of Erad.	Acreage Examined	Ribes Pulled: Wild	Ribes Pulled: Cult.	Total Man Days	Cost: Local Coop.	Cost: State	Cost: B.E.&P.Q. and B.P.I.	Cost: P.W.A.	Cost: C.C.C.	Cost: W.P.A.	Cost: S.C.S.	Cost: Total	Per Acre: Cost	Per Acre: Ribes	Per Acre: Man Days
	Initial	206	103,516	22	163	324.45	198.20	-	-	-	-	-	522.65	2.54	502.5	.79
Maine	Re-Erad.	1,326	10,632	-	281	156.13	184.60	-	461.25	129.82	-	-	931.85	.703	8.0	.21
	Total	1,532	114,148	22	444	480.63	382.80	-	461.25	129.82	-	-	1,454.50	.949	74.5	.29
	Initial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N. H.	Re-Erad.	2,222	7,805	1	272	172.28	322.71	-	-	-	424.76	-	919.75	.414	3.5	.12
	Total	2,222	7,805	1	272	172.28	322.71	-	-	-	424.76	-	919.75	.414	3.5	.12
	Initial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vt.	Re-Erad.	2,230	4,839	75	409	-	957.91	-	-	108.00	218.27	-	1,284.18	.576	2.2	.18
	Total	2,230	4,839	75	409	-	957.91	-	-	108.00	218.27	-	1,284.18	.576	2.2	.18
	Initial	723	30,369	112	139	140.80	212.79	10.00	195.34	-	-	-	558.93	.773	42.0	.19
Mass.	Re-Erad.	7,310	19,194	182	1114	89.20	3454.27	-	-	-	1495.75	-	5,039.22	.689	2.6	.15
	Total	8,033	49,563	294	1253	230.00	3667.06	10.00	195.34	-	1495.75	-	5,598.15	.697	6.2	.15
	Initial	1,780	160	565	167	-	343.56	162.87	-	-	46.50	-	552.93	.311	0.1	.09
R. I.	Re-Erad.	15,993	4,784	184	263	-	755.62	-	150.00	151.13	318.42	-	1,375.17	.086	0.3	.02
	Total	17,773	4,944	749	430	-	1099.18	162.87	150.00	151.13	364.92	-	1,928.10	.108	0.3	.02
	Initial	7,157	5,839	152	278	204.32	352.69	139.92	120.00	65.28	-	-	882.21	.123	0.8	.04
Conn.	Re-Erad.	51,428	10,699	888	2377	557.04	3711.64	610.87	677.80	1137.68	1355.79	-	8,050.82	.157	0.2	.05
	Total	58,585	16,538	1040	2655	761.36	4064.33	750.79	797.80	1202.96	1355.79	-	8,933.03	.152	0.3	.05
	Initial	3,110	26,017	634	352	5.60	1219.95	-	-	-	-	-	1,225.55	.394	8.4	.11
N. Y.	Re-Erad.	89,481	129,828	1246	5625	246.57	14492.27	-	2490.75	255.50	2015.52	80.55	19,581.16	.219	1.4	.06
	Total	92,591	155,845	1880	6007	252.17	15712.22	-	2490.75	255.50	2015.52	80.55	20,806.71	.225	1.7	.06
	Initial	795	2,000	114	109	-	99.45	-	-	-	-	228.00	327.45	.412	2.5	.14
N. J.	Re-Erad.	870	765	-	18	-	76.47	(2) 52.04	3.33	-	-	2.25	134.09	.154	0.9	.02
	Total	1,665	2,765	114	127	-	175.92	52.04	3.33	-	-	230.25	461.54	.277	1.7	.08
	Initial	4,414	35,460	404	3434	235.30	617.43	36.80	264.55	-	-	55.30	1,209.38	.274	8.7	.78
Penna.	Re-Erad.	15,805	52,655	71	3563½	344.65	3232.61	-	-	3683.83	836.29	-	8,097.38	.512	3.3	.23
	Total	20,219	91,115	565	3907	579.95	3850.04	36.80	264.55	3683.83	836.29	55.30	9,306.76	.460	4.5	.19
	Initial	18,185	206,361	2093	1581½	910.47	3044.07	349.59	579.89	65.28	46.50	283.30	5,270.10	.290	11.3	.87
Totals	Re-Erad.	185,665	241,201	2647	13922½	1565.92	27185.10	662.91	3783.13	5465.96	6664.80	82.80	45,413.62	.243	1.3	.07
	Total	204,850	447,562	4740	15504	2476.39	30232.17	1012.50	4363.02	5531.24	6711.30	366.10	50,698.72	.247	2.2	.08
% of total cost by cooperating agencies						4.9	59.7	2.0	8.6	10.9	13.2	0.7	100.0			

(1) Town funds - balance of expenditures under heading "Local Cooperation" all individual funds.
(2) Includes $1,184.20 W.P.A. funds spent under State W.P.A. Program.
(3) Includes $29.54 B.E. & P.Q. funds - balance of expenditures under this heading were from B.P.I. funds.

Table 101- Summary of Nursery Sanitation Work Under All Programs in Northeastern States During Period 1930-1939, Inclusive.
By Years

Year	Type of Erad.	Acreage Examined	Ribes Pulled: Wild	Ribes Pulled: Cult.	Total Man Days	Cost: Local Coop.	Cost: State	Cost: BE&PQ and B.P.I	Cost: P.W.A.	Cost: C.C.C.	Cost: W.P.A.	Cost: S.C.S.	Cost: Total	Per Acre: Cost	Per Acre: Ribes	Per Acre: Man Days
1930	Initial	4,973	110,704	182	447	525.77	905.19	—	—	—	—	—	1,433.96	.288	22.3	.09
	Re-Erad.	20,752	59,542	643	1490	568.89	4198.33	—	—	—	—	—	4,767.22	.230	2.9	.07
	Total	25,725	170,246	825	1937	1097.66	5103.52	—	—	—	—	—	6,201.18	.241	6.6	.08
1931	Initial	3,048	6,117	55	120	5.60	240.36	139.92	—	—	—	—	385.88	.127	2.0	.04
	Re-Erad.	25,776	26,126	1086	1671	117.69	4863.42	372.50	—	—	—	—	5,353.61	.200	1.0	.06
	Total	29,824	32,243	1141	1791	123.29	5104.78	512.42	—	—	—	—	5,739.49	.192	1.1	.06
1932	Initial	4,759	16,476	1222	565	50.65	1586.32	172.87	—	—	—	—	1,611.84	.381	3.5	.12
	Re-Erad.	12,903	12,543	60	1247	(1)163.24	3825.15	5.33	—	—	—	—	3,996.72	.310	1.0	.10
	Total	17,662	29,021	1282	1812	213.89	5416.47	178.20	—	—	—	—	5,808.56	.329	1.6	.10
1933	Initial	1,574	21,642	32	130	59.40	196.95	36.80	264.55	—	—	—	557.70	.354	13.7	.08
	Re-Erad.	18,662	36,643	368	1713	(2)331.95	4608.74	255.54	—	709.40	—	—	5,905.63	.316	2.0	.09
	Total	20,236	58,285	400	1843	391.35	4805.69	292.34	264.55	709.40	—	—	6,463.33	.319	2.9	.09
1934	Initial	2,293	46,247	144	162	217.55	7.00	—	315.34	65.28	—	—	605.17	.264	21.0	.07
	Re-Erad.	18,144	30,642	62	1904	—	2432.22	—	3066.50	796.84	—	—	6,295.56	.347	1.7	.11
	Total	20,437	78,889	206	2066	217.55	2439.22	—	3381.84	862.12	—	—	6,900.73	.338	3.9	.10
1935	Initial	148	1,608	320	27	46.90		—	—	—	—	—	46.90	.317	10.9	.18
	Re-Erad.	18,489	30,513	179	1269	34.75	1987.27	—	716.63	849.93	—	—	3,588.58	.194	1.7	.07
	Total	18,637	32,121	499	1296	81.65	1987.27	—	716.63	849.93	—	—	3,635.48	.195	1.7	.07
1936	Initial	195	1,538	65	102	—	77.25	—	—	—	—	228.00	305.25	1.57	7.9	.52
	Re-Erad.	13,604	13,288	155	1500	63.00	1802.06	—	—	595.92	2930.79	—	5,391.77	.396	1.0	.11
	Total	13,799	14,826	220	1602	63.00	1879.31	—	—	595.92	2930.79	228.00	5,697.02	.413	1.1	.12
1937	Initial	980	27	70	9½	1.60	—	—	—	—	46.50	—	48.10	.049	.03	.01
	Re-Erad.	17,809	12,045	70	1505½	230.90	1438.43	(3) 29.54	—	1174.51	2008.03	2.25	4,883.66	.274	0.7	.08
	Total	18,789	12,072	140	1515	232.50	1438.43	29.54	—	1174.51	2054.53	2.25	4,931.76	.262	0.6	.08
1938	Initial	215	—	3	19	—	29.00	—	—	—	—	55.30	84.30	.392	0	.09
	Re-Erad.	21,755	10,091	12	1115	55.50	1309.13	—	—	954.70	893.60	48.15	3,261.08	.150	0.5	.05
	Total	21,970	10,091	15	1134	55.50	1338.13	—	—	954.70	893.60	103.45	3,345.38	.152	.45	.05
1939	Initial	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Re-Erad.	17,771	9,768	12	508	—	720.35	—	—	384.66	832.38	32.40	1,969.79	.111	0.5	.03
	Total	17,771	9,768	12	508	—	720.35	—	—	384.66	832.38	32.40	1,969.79	.111	0.5	.03
Total	Initial	18,185	206,361	2093	1581½	910.47	3044.07	349.59	579.89	65.28	46.50	283.30	5,279.10	.290	11.3	.09
	Re-Erad.	186,665	241,201	2647	13,922½	1565.92	27188.10	662.91	3783.13	5465.96	6664.80	82.80	45,413.62	.243	1.3	.07
	Total	204,850	447,562	4740	15,504	2476.39	30232.17	1012.50	4363.02	5531.24	6711.30	366.10	50,692.72	.247	2.2	.08
% of Total cost by cooperating agencies						4.9	59.7	2.0	8.6	10.9	13.2	0.7	100.0	-	-	-

(1) Includes $7.73 town funds. (2) Includes $148.45 town funds. (3) B.E.& P.Q. funds.

Table 102 - Summary of forest protection work in participating States During Period 1930-1939, Inclusive - By Programs

Program	Type of Prod.	Total Acreage Examined	Fires Fought: Wild	Cult.	Total Man Days	Cost: Local Coop.	State	B.E. and P.Q. and E.F.[1]	C.C.C.	W.P.A.	S.C.S.	Total	Per Acre: Cost	Rate
Regular Coopera- tive	Initial	16,490	178.967	1930	1271½	879.72	2950.82	349.59	-	-	-	4160.13	.252	1.7
	Re-Erad	125 016	171.368	2417	7360	1258.42	23824.80	633.37	-	-	-	25716.24	.206	1.4
	Total	141.506	350.335	4347	8631½	2138.14	26755.62	982.96	-	-	-	29876.72	.211	3.0
P.W.A.	Initial	415	25.597	3	147	30.75	7.00	-	579.89	-	-	617.64	1.49	51.7
	Re-Erad	15.422	14.285	96	1355	-	1597.41	-	3783.13	-	-	5380.54	.349	0.9
	Total	15.837	39.882	99	1503	30.75	1604.41	-	4363.02	-	-	5998.18	.379	2.4
C.C.C.	Initial	280	232	47	33	-	-	-	-	65.28	-	-	65.28	.233	0.4
	Re-Erad	10.497	44.252	14	3385	-	736.30	-	-	5465.96	-	-	6202.26	.591	4.9
	Total	10.777	44.484	61	3418	-	736.30	-	-	5531.24	-	-	6267.54	.582	4.1
Federal W.P.A.	Initial	590	27	45	9	-	-	-	-	-	46.50	-	46.50	.079	0.02
	Re-Erad	22.544	10.444	119	1524	307.50	862.79	-	-	-	5480.60	-	6650.89	.295	0.3
	Total	23.134	10.471	164	1533	307.50	862.79	-	-	-	5527.10	-	6697.39	.290	0.5
State W.P.A.	Initial	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad	1.798	335	-	243	-	-	-	-	-	1184.20	-	1184.20	.659	0.2
	Total	1.798	335	-	243	-	-	-	-	-	1184.20	-	1184.20	.659	0.2
S.C.S.	Intial	410	1.538	68	121	-	106.25	-	-	-	-	283.30	389.55	.950	3.2
	Re-Erad	11.388	517	1	54½	-	166.80	29.54	-	-	-	82.80	279.14	.025	0.05
	Total	11.798	2.055	69	175½	-	273.05	29.54	-	-	-	366.10	668.69	.057	0.2
Totals	Initial	18.185	206.361	2093	1551½	910.47	3044.07	349.59	579.89	65.28	46.50	283.30	5279.10	.290	11.3
	Re-Erad	186 665	241.201	2647	13922½	1565.92	27158.10	662.91	3783.13	5465.96	6664.80	82.80	45413.62	.243	1.3
	Total	204.850	447.562	4740	15504	2476.39	30232.17	1012.50	4363.02	5531.24	6711.30	366.10	50692.72	.247	2.2
% of total cost by cooperating agencies						4.9	59.7	2.0	8.6	10.9	13.2	0.7	100.0	-	-

[1] B.E. and P.Q. funds.

Table 103- Status of Nursery Sanitation Work in Northeastern States, December, 1939

State	Nurseries Where Protection Established and Being Maintained: Number: Federal	State	Private	Total	Maximum Acreage of Control Areas	No. Nurseries Protected During 1939	No. White Pines Existing During 1939 in Nurseries Protected That Year
Maine	-	1	1	2	409	-	-
N.H.	-	1	2	3	914	1	1,500,000
Vt.	-	1	-	1	700	-	-
Mass.	-	4	7	11	8,450	6	1,311,000
R. I.	-	-	5	5	2,273	5	3,135
Conn.	-	2	10	12	3,966	7	2,729,298
N. Y.	3	3	1	7	10,577	4	18,962,000
N. J.	1	1	-	2	795	-	-
Penna.	1	4	4	9	4,136	6	3,720,000
Totals	5	17	30	52	32,220	29	28,225,433

Twenty-six other nurseries in the Northeastern States established zones, but abandoned them for various reasons.

List of Nurseries Maintaining Sanitation Zones in Northeastern States

Maine

Western Maine Nursery - Fryeburg, Maine
State Nursery - Orono, Maine

New Hampshire

Western Maine Nursery - Conway, N.H.
Keene Forestry Associates- Swanzey, N. H.
State Nursery - Boscawen, N. H.

Vermont

State Nursery - Essex Junction, Vt.

Massachusetts

Massachusetts Dept. of Conservation Nursery - Amherst, Mass.
Massachusetts Dept. of Conservation Nursery - Bridgewater, Mass.
Massachusetts Dept. of Conservation Nursery - Clinton, Mass.
Massachusetts Dept. of Conservation Nursery - Erving, Mass.
Winchendon Forest Nursery - Winchendon, Mass.
Franklin Forestry Company - Shelburne Falls, Mass.
Kelsey Highlands Nursery - Boxford, Mass.
Little Tree Farms Nursery - Framingham, Mass.
Wyman Nursery - Framingham, Mass.
Littlefield-Wyman - North Abington, Mass. & Bay State Nursery-Abington, Mass.

Rhode Island

Newport Nursery - Middleton, R.I.
Rhode Island Nursery - Middleton, R.I.
Greenwood Nursery - North Kingston, R.I.
Red Oaks Nursery - Scituate, R.I.
Greaton Nursery - Providence, R.I.

List of Nurseries Maintaining Sanitation Zones in Northeastern States (Continued)

Connecticut

Towpatch Nursery - West Hartford, Conn.
Northeastern Forestry Company, Cheshire, Conn.
A. N. Pierson Inc. - Cromwell, Conn.
Elfgren Nursery - East Killingly, Conn.
Verkades Nursery - Waterford, Conn.
Bristol Nursery - Bristol, Conn.
Farmington Valley Nursery - Avon, Conn.
Barnes Brothers Nursery - Yalesville, Conn.
Southport Nursery - Southport, Conn.
Stephen S. Hoyt Nurseries - New Canaan, Conn.
State Nursery - Barkhamsted, Conn.
State Nursery - Tolland, Conn.

New York

State Nursery - Saratoga, N. Y.
State Nursery - Lowville, N. Y.
State Nursery - Painted Post, N.Y.*
State Nursery - Horseheads, N. Y.*
State Nursery - Tully, N. Y.*
New York State College of Forestry Nursery - Syracuse, N. Y.
Jackson - Perkins Nursery - Newark, N. Y.

* Leased by Soil Conservation Service

New Jersey

State Nursery - Washington Crossing, N. J.
S.C.S. Nursery - New Brunswick, N. J.

Pennsylvania

Clearfield State Nursery - Clearfield, Penna.
Greenwood State Nursery - Petersburg, Penna.
Mt. Alto State Nursery - Mt. Alto, Penna.
Rockview State Nursery - Pleasant Gap, Penna.
S.C.S. Nursery - Mt. Eagle, Penna.
Wilmore Realty Co. Nursery - Windber, Penna.
Andorra Nursery - Chester Hill, Penna.
Fairview Nursery - Fairview, Penna.
Doyle Nursery - Seven Stars, Penna.

Table 104 - Special Ribes Nigrum Elimination Work Conducted Under All Programs in Northeastern States During Period 1918-1939, Inclusive

By Programs

Program		Regular	P.W.A.	W.P.A.	C.W.A.	E.R.A.	Total
No. Properties Inspected		1,082,802	6,157	154,765	195,750	240,335	1,679,809
No. Patches Located		14,226	39	848	5,404	25,858	46,375
No. Ribes Pulled	Nigrum	85,618	7,486	2,785	-	7,110	102,999
	Other Cult.	20,550	-	413	-	23,701	44,664
	Total	106,168	7,486	3,198	-	30,811	147,663
Total Man Days		14,150	375	943	1,850	11,675	28,993
Cost	Individuals	2,351.80	777.00	427.70	-	-	3,556.50
	Towns	-	-	-	-	901.00	901.00
	State	59,541.69	52.25	257.64	-	601.66	60,453.24
	B.P.I.	4,422.95	-	-	-	-	4,422.95
	P.W.A.	1,386.06	581.54	-	348.24	654.55	2,970.39
	C.C.C.	-	-	-	-	218.40	218.40
	W.P.A.	-	-	4,135.26	-	-	4,135.26
	C.W.A.	-	-	-	8,626.21	-	8,626.21
	E.R.A.	-	-	-	-	59,565.50	59,565.50
	Total	67,702.50	1,410.79	4,820.60	8,974.45	61,944.11	144,852.45
% of Total		46.7	1.0	3.3	6.2	42.8	100.0

C.W.A. project consisted of location work only.

Table 105 - Special Ribes Nigrum Eliminating Work Conducted Under all Programs In Northeastern States. 1915-1939, Inclusive.

By States

State		Mass.	R.I.	Conn.	N.Y.	Totals
No. Properties Inspected		724,811	110,137	318,344	526,517	1,679,809
No. Patches Located		6,636	1,917	32,695(2)	5,127	46,375
No. Ribes Pulled	Nigrum	42,258(1)	16,219	7,464	37,058	102,999
	Other Cult.	413	1,093	42,397	761	44,664
	Total	42,671	17,312	49,861	37,819	147,663
Total Man Days		7,209	1,929	14,610	5,245	28,993
Cost	Indiv.	3,556.50	-	-	-	3,556.50
	Towns	-	-	901.00	-	901.00
	State	20,641.53	9,178.55	3,110.99	27,522.17	60,453.24
	B.P.I.	100.00	675.53	3,647.42	-	4,422.95
	P.W.A.	550.04	473.80	1,915.05	31.50	2,970.39
	C.C.C.	-	-	218.40	-	218.40
	W.P.A.	3,952.66	-	-	182.60	4,135.26
	C.W.A.	2,688.11	-	5,938.10	-	8,626.21
	E.R.A.	-	-	59,568.50	-	59,568.50
	Total	31,488.84	10,327.88	75,299.46	27,736.27	144,852.45
% of Total		21.7	7.1	52.0	19.2	100.0

(1) Includes 556 bushes pulled in connection with special black currant eliminating project around nurseries in 1925 and 1926 at a cost of $367.59 to the state.

(2) The survey in Connecticut included all cultivated Ribes. It is estimated that the number of black currant patches in that state did not exceed 1,500.

Table 106 - Status of Ribes Nigrum Elimination Work in Northeastern States December 31, 1939.

State	Years Work Performed	Total Number Townships In State	No. Townships Where Black Currant Elimination Work	
			Completed	Partially Completed
Mass.	1930-1939, Incl.	355	346*	-
R.I.	1929-1933, Incl.	39	39	-
Conn.	1930-1935, Incl.	169	169	-
N.Y.	1926-1939, Incl.	996	236	39
Totals	-	1,559	790	39

* Nine additional townships on the islands adjacent to the mainland will not be worked.

In conjunction with the regular control activities in the other states, such bushes have been eradicated in the worked portions of the control areas. Few Ribes nigrum have been found in these latter states.

Table 107 - Dilat-r Rust Canker Eliminations Were Under All Programs in Northeastern States, 1918-1939, Inclusive

By States

State		Maine	N.H.	Vt.	Mass.	N.Y.	Penna.	Total
Period work performed		1932-39	1937	1935-39	1933-39	1935-39	1934-39	1932-39
Est. No. pines examined		155,141	28,581	206,263	4,751,450	1,470,670	863,620	7,475,725
No. fatally inf. pines cut down		11,162	5,731	38,543	30,956	145,758	32,562	264,711
No. pines from which cankers removed		21,438	638	18,749	16,210	187,981	121,717	366,733
No. cankers removed	Branch	45,928	711	21,624	21,348	250,066	555,226	894,903
	Stem	4,570	-	356	-	1,386	1,774	8,086
Total man days		2,904	219	2,210	8,145	11,619	7,004	32,101
Cost	Individuals	2,084.64	-	446.02	-	240.00	-	2,770.66
	Towns	-	-	405.00	3,129.00	-	-	3,534.00
	State	31.65	-	20.50	67.98	1,580.26	-	1,700.39
	Park Service	321.04	-	-	-	-	-	321.04
	C.C.C.	3,922.90	-	-	-	-	8,203.09	12,125.99
	W.P.A.	-	779.37	6,176.91	7,938.94	45,477.02	9,984.06	70,356.30
	C.W.A.	-	-	-	24,255.74	-	-	24,255.74
	Total	6,360.23	779.37	7,048.43	35,391.66	47,297.28	18,187.15	115,064.12
% of Total		5.5	0.7	6.1	30.8	41.1	15.8	100.0

Table 105 - White Pine Blister Rust Control Work Under All Programs in Northeastern States, 1918-1939, Inclusive.

By Programs

Program		Regular	C.C.C.	W.P.A.	C.W.A.	Total
Period work performed		1932-1939	1933-1939	1935-1939	1933-1934	1932-1939
Tot. No. pines examined		112,774	625,279	2,089,672	4,648,000	7,475,725
No. fatally inf. pines cut down		9,587	31,265	206,557	17,303	264,712
No. pines from which cankers removed		14,095	84,927	254,927	12,784	366,733
No. cankers removed	Branch	21,566	485,509	370,317	17,511	894,903
	Stem	2,022	2,758	3,306	-	8,086
Total man days		864	6,741	19,087	5,409	32,101
Cost	Individuals	$2,530.66	-	$240.00	-	$2,770.66
	Towns	-	-	3,534.00	-	3,534.00
	State	31.65	-	1,668.74	-	1,700.39
	Park Service	321.04	-	-	-	321.04
	C.C.C.	-	$12,125.99	-	-	12,125.99
	W.P.A.	-	-	70,356.30	-	70,356.30
	C.W.A.	-	-	-	$24,255.74	24,255.74
	Total	$2,883.35	$12,125.99	$75,799.04	$24,255.74	$115,064.12
% of Total		2.5	10.5	65.9	21.1	100.0

Table 109 - Pine and Control Area Mapping Conducted Under All Programs in Northeastern States During Period 1933-1939, Inclusive

By States

State	Acreage Mapped	Acreage Examined But Not Mapped	Miles Boundary Lines Painted	Man Days	Cost							
					Towns and Counties	State	C.C.C.	P.W.A.	W.P.A.	E.R.A. & C.W.A.	B.E. & P.Q.	Total
Maine	2,004,026	4,473,020	1720	30,795	-	3,105.33	16,956.86	6,538.14	108,946.02	-	17.60	135,563.95
N.H.	1,184,765	205,615	-	31,788	843.11	1,425.14	11,168.98	9,443.25	111,669.90	-	1.25	134,551.63
Vt.	1,404,488	3,114,283	778	18,026	1405.79	1,234.47	4,800.57	1,946.18	60,177.73	-	-	69,564.74
Mass.	748,510	888,187	1073	15,671	2413.10	1,271.45	-	2,898.14	62,001.94	3,112.25	41.75	71,738.63
R.I.	225,660	-	-	2,264	-	820.25	7,675.26	2,009.28	3,443.36	-	-	13,948.15
Conn.	648,106	2,611,319	1893¼	20,148	2510.62	1,325.48	827.60	568.10	78,870.84*	22,211.70	420.29	106,734.63
N.Y.	3,534,588	1,309,609	2,399	32,067	-	18,135.82	2,388.49	14,559.60	116,920.86	-	25.11	152,029.88
Penna.	659,107	-	5,496	39,059	-	-	97,858.14	1,266.87	53,386.49	-	4.00	152,495.50
Totals	10,409,250	12,602,033	13,359¼	189,818	7,172.62	27,317.94	141,655.90	39,229.56	595,417.14	25,323.95	510.00	836,627.11

*Includes $64,237.53 W.P.A. funds spent on special state project.

By Programs

Programs	Acreage Mapped	Acreage Examined But Not Mapped	Miles Boundary Lines Painted	Man Days	Cost							
					Towns and Counties	State	C.C.C.	P.W.A.	W.P.A.	E.R.A. & C.W.A.	B.E. & P.Q.	Total
Regular	362,014	203065	-	1,806	-	8,562.70	-	-	-	-	-	8,562.70
C.C.C.	975,219	364002	2226	36,738	-	189.59	141,655.90	-	-	-	-	141,845.49
P.W.A.	744,663	942528	227	6,915	-	1,025.28	-	39,229.56	-	-	-	40,254.84
Federal W.P.A.	7,804,866	6,804030	9297	127,555	4,837.00	16,869.59	-	-	531,179.61	-	510.00	553,396.20
E.R.A.	213,971	2,139370	-	4,205	-	-	-	-	-	22,211.70	-	22,211.70
C.W.A.	45,761	34138	-	592	-	-	-	-	-	3,112.25	-	3,112.25
State W.P.A.	262,756	114900	1609¼	12,007	2,335.62	670.68	-	-	64,237.53	-	-	67,243.83
Totals	10,409,250	12,602033	13359¼	189,818	7,172.62	27,317.94	141,655.90	39,229.56	595,417.14	25,323.95	510.00	836,627.11

Table 110 - Status of Pine and Control Area Mapping in Northeastern States
April 30, 1940

State	No. Townships			Status of Mapping in Townships Within Permanent Pine Production Area								Mapping Performed in Townships Outside Permanent Pine Production Area			
	Within Permanent Pine Production Area	Outside Permanent Pine Production Area	Total	Detailed Mapping						Spot Mapping		Detailed Mapping		Spot Mapping	
				Completed		Partly Completed		No Work Done							
				No.	%	No.	%	No.	%	Completed	Partly Completed	Completed	Partly Completed	Completed	Partly Completed
Maine	365	556	921	279	76.4	17	4.7	69	18.9	-	-	24	-	-	-
N. H.	225	33	258	64	28.4	91	40.5	70	31.1	-	-	-	-	-	-
Vt.	165	83	248	142	86.1	7	4.2	16	9.7	-	-	49	2	-	-
Mass.	239	116	355	88	36.8	8	3.4	143	59.8	-	-	23	-	-	-
R. I.	15	24	39	5	33.3	6	40.0	4	26.7	-	-	-	-	-	-
Conn.	43	126	169	43	100.0	0	-	0	-	-	-	125	1	-	-
N. Y.	838	158	996	226	27.0	61	7.3	551	65.7	599	-	4	-	24	-
Penna.	919	661	1580	205	22.3	372	40.5	342	37.2	621	149	5	12	21	37
Totals	2809	1757	4566	1052	37.5	562	20.0	795	42.5	1220	149	230	15	45	37

It is questionable whether the remaining townships outside the permanent pine production area, especially in Maine and Pennsylvania, should be mapped due to the inaccessibility of most of the areas in Maine, and the scattered distribution and small acreage of the white pine units in Pennsylvania.

STATUS OF WHITE PINE AND CONTROL AREA MAPPING IN THE NORTHEASTERN STATES - APRIL 30, 1940

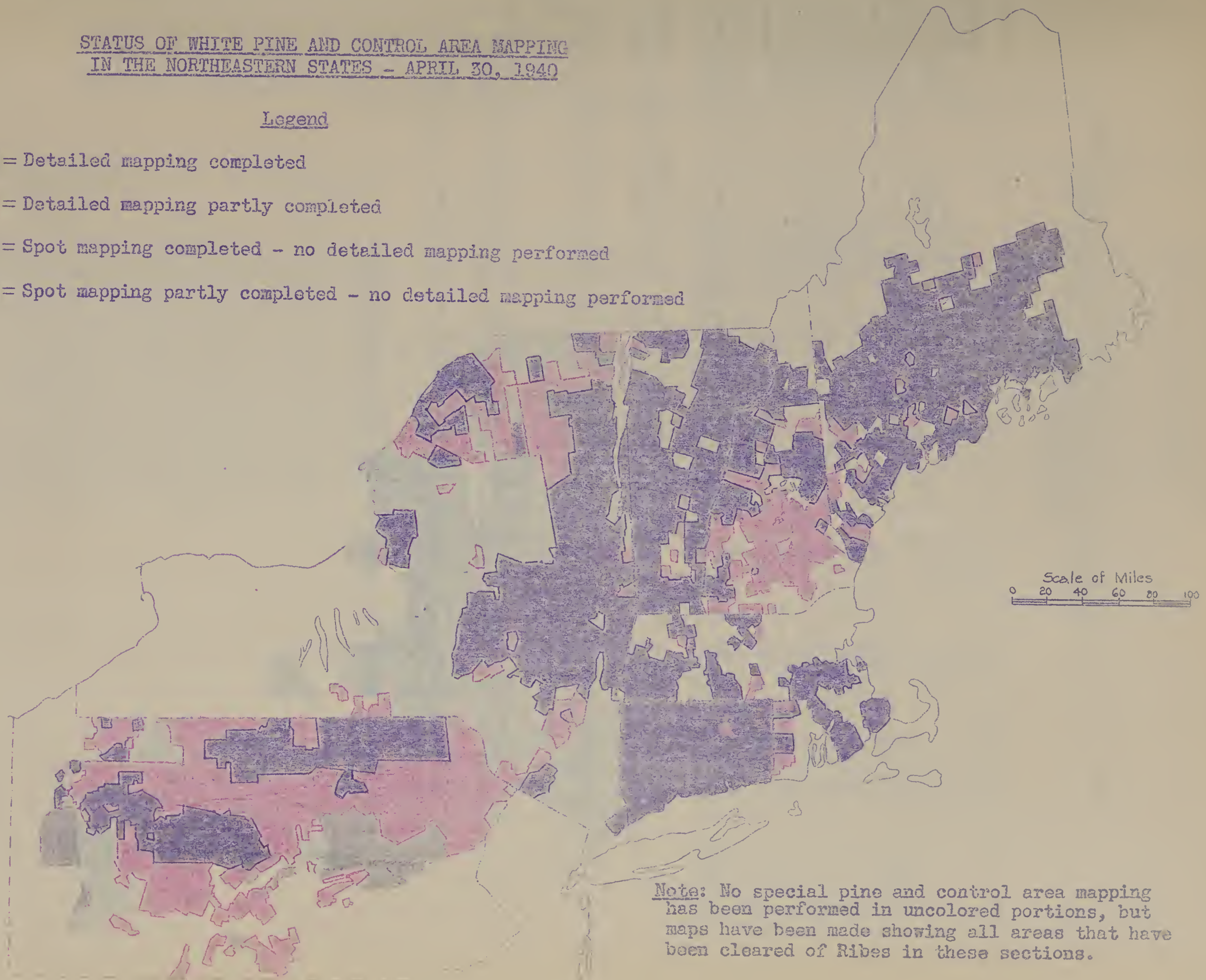
Legend

= Detailed mapping completed

= Detailed mapping partly completed

= Spot mapping completed - no detailed mapping performed

= Spot mapping partly completed - no detailed mapping performed



Note: No special pine and control area mapping has been performed in uncolored portions, but maps have been made showing all areas that have been cleared of Ribes in these sections.

Table III- State Compensation Paid for Cultivated Ribes Destroyed Under All Programs in Northeastern States 1918-1939, Inclusive.

State	Total No. Cultivated Ribes Destroyed	No. Bushes Paid For	% Bushes Paid For	No. Persons Paid Compensation	Amount Paid in Reimbursement	Ave. Amount Paid Per Bush
Maine	150,080	-	-	-	-	-
N.H.	154,428	2,008	1.3	63	$550.60	$.27¼
Vt.	16,766	1,646	9.8	133	792.91	.482
Mass.	321,270	42,07¼	13.1	673	15,020.15	.357
R.I.	41,531	1,410	3.4	58	509.79	.362
Conn.	89,546	175	0.2	16	103.50	.591
N.Y.	170,065	16,338	9.6	1,151	5,567.99	.342
N.J.	1,842	-	-	-	-	-
Penn.	43,180	336	0.7	54	153.00	.455
Totals	993,708	63,987	6.4	2,148	$22,717.94	$.355

The Vermont data include $86.25 compensation paid by individual cooperators in 1925 and 1933 to ten owners of cultivated Ribes for the removal of 181 bushes.

The Massachusetts data include $5,655.05 paid in 1918 to 253 persons for 16,317 bushes destroyed in 1917 and 1918, mostly in 1917. It is impossible to separate the 1917 data.

The Connecticut data include $76.25 paid in 1930 by individual cooperators (nurserymen) to 12 owners of cultivated Ribes for the removal of 114 bushes

The Pennsylvania data represent payments made by individual cooperators (nurserymen) during 1936 and 1937.

No federal money has been paid for Ribes compensation.

Table 112 - Total Cost of All Cooperative Blister Rust Control Activities, By Projects, in The Northeastern States During Period 1918-1939, Inclusive.

State	Supervision And BRC Agent Activities	Ribes Eradication	Eradication Assistants and Checkers	Black Currant Elimination	Nursery Sanitation	Ribes Compensation	Blister Rust Canker Elimination	Pre-Erad. Surveys	Field Date and Misc.	Totals
Maine	359,377.98	937,998.98	103,704.24	-	10,954.50(1)	-	6,360.23	135,563.95	27,156.51	1,581,116.79
N. H.	531,697.94	1,158,030.56	92,501.72	-	919.75	550.60	779.37	134,551.63	60,385.81	1,979,417.38
Vt.	195,369.18	409,615.02	31,578.05	-	1,284.18	792.91	1,045.43	69,564.74	34,799.68	750,043.19
Mass.	385,513.14	650,369.20	20,556.36	31,488.84	6,113.00(2)	15,020.15	35,391.86	71,738.63	52,152.08	1,268,342.46
R. I.	60,648.27	145,375.83	24,523.35	10,327.85	1,928.10	509.79	-	13,945.15	9,305.00	269,566.37
Conn.	146,140.99	323,544.96	67,506.56	75,299.46	8,933.03	103.50	-	106,734.63	119,751.53	848,314.70
N. Y.	595,328.77	2,227,002.53	330,934.33	27,736.27	20,806.71	5,587.99	47,297.28	152,029.68	321,268.34	3,727,992.10
N. J.	22,897.12	6,915.69	1,952.88	-	685.90(3)	-	-	-	4,559.08	37,010.67
Penna.	146,610.44	693,558.24	159,544.97	-	9,306.76	153.00	15,187.15	152,495.50	25,540.67	1,407,396.73
Total	2,445,583.83	6,755,711.01	832,802.46	144,852.45	60,931.93	22,707.94	115,064.12	836,627.11	654,911.80	11,869,202.62
Total	20.6	56.9	7.0	1.2	0.5	0.2	1.0	7.1	5.5	100.0

(1) Includes $9,500.00 (charge of $500.00 per year) for nursery inspection work from 1918-1936, inclusive.

(2) Includes $514.55 for special nursery inspection work during 1933-1934.

(3) Includes $224.36 for special nursery inspection work during 1932.

Table 113 - Total Cost of All Cooperative Blister Rust Control Activities in The Northeastern States During The Period 1918-1939, Inclusive.

	State	Maine	N. H.	Vt.	Mass.	R. I.	Conn.	N. Y.	N. J.	Penna.	All States
State Funds	State Appropriations	134,544.73	295,057.14	58,080.23	297,677.91	64,223.30	138,813.92	1,202,440.37	16,828.15	109,109.55	2,316,785.60
	Towns	117,810.98	410,944.82	19,146.80	17,785.46	"	21,795.39	90.00	"	"	587,575.45
	Individuals	84,841.86	47,804.51	72,984.30	98,913.35	581.36	9,235.57	172,049.02	"	2,189.23	488,599.20
	Counties	"	1,724.08	"	"	"	"	25,443.29	"	"	27,137.37
	Total State Funds	337,197.57	755,530.55	150,223.33	414,376.72	64,804.66	169,844.88	1,399,992.68	16,828.15	111,299.08	3,420,097.62
Federal Funds - Regular	B.P.I.	249,874.54	434,419.50	119,398.94	323,303.88	43,883.83	103,065.16	479,769.34	6,271.23	31,619.21	1,791,601.63
	B.E. & P.Q.	37,055.33	35,791.18	25,033.38	34,784.98	1,976.08	15,218.24	39,625.97	2,949.64	25,827.99	222,295.79
	Park & Forest Services	9,780.69	2,442.11	"	"	"	"	"	"	779.77	13,002.57
	Sub-Total	296,740.56	472,648.79	144,432.32	358,088.86	45,859.91	121,283.40	519,395.31	9,220.92	58,226.97	2,026,900.04
Federal Funds - Emergency	C.C.C.	329,761.49	147,352.00	89,037.97	60,476.68	104,941.98	157,434.95	728,018.25	946.50	778,072.93	2,395,512.75
	F.E.R.A.	69,128.95	68,597.21	32,165.20	52,071.89	12,427.98	22,479.39	98,334.23	3,081.48	45,474.63	397,763.96
	W.P.A. State Program	"	"	"	"	"	192,498.94	324.60	"	9,400.00	202,223.54
	W.P.A. Federal Program	546,843.02	535,266.33	334,181.37	341,196.63	39,891.84	83,153.99	968,221.18	7,303.37	389,634.40	3,245,914.63
	C.W.A.	"	"	"	31,134.03	"	5,938.10	"	"	"	37,072.13
	E.R.A.	1,426.80	"	"	10,995.20	"	94,476.40	2,779.70	"	"	109,683.10
	A.R.A.	"	"	"	"	1,640.00	1,152.71	8,030.58	"	4,254.65	15,057.94
	S.C.S.	"	"	"	"	"	"	8,912.27	250.25	9,643.27	18,755.79
	T.V.A.	"	"	"	"	"	"	"	"	220.80	220.80
	Sub-Total	947,180.26	751,215.54	455,384.54	496,877.43	158,901.80	557,186.45	1,805,601.11	10,961.60	1,236,870.68	6,422,204.99
Total Federal Funds		1,243,920.82	1,223,866.33	599,819.86	853,966.34	204,761.71	678,469.85	2,327,999.42	20,182.52	1,296,097.65	8,449,105.03
Grand Total		1,581,118.39	1,979,417.35	750,043.19	1268,343.06	269,566.37	848,314.73	3,727,992.10	37,010.67	1,407,386.73	11,869,202.65
Percentage of Total		13.3	16.7	6.3	10.7	2.3	7.1	31.4	0.3	11.9	100.0

Table 114a - [illegible]
([illegible] except in New Jersey where figures represent estimates made in 1934.)

State	a.-Pure White Pine (80-100% white pine)		b.- Mixed Types Containing White Pine		c.-Other Types* With 1-20% White Pine Above Restocking Size and Also Pine Restocking	Totals (a+b+c)	[illegible] Restocking (All types except pure pine under 6" DBH)
	6" and Over DBH	Under 6" DBH	30-79%	21-29%			
Me.	304,790	284,490	794,915	248,258	976,458	2,608,911	1,703,727
N.H.	283,526	548,525	278,366	295,439	157,477	1,544,033	393,362
Vt.	29,927	75,453	160,147	78,415	225,146	567,084	298,730
Mass.	162,113	288,686	273,266	63,765	170,734	958,564	533,015
R.I.	13,543	436	-	-	59,417	73,196	59,217
Conn.	32,657	40,729	66,551	57,794	18,383	216,154	58,071
N.J.	214,600	457,172	242,218	231,699	170,269	1,316,957	236,134
N.E.&N.Y.	1,020,992	1,693,190	1,815,463	976,370	1,777,884	7,283,899	3,135,696
N.Y.	600	1,500	2,000	1,500	2,000	7,600	3,000
Pa.	51,854	40,043	28,078	98,023	157,630	375,628	226,242
All States	1,075,446	1,734,733	1,845,541	1,075,993	1,937,514	7,667,127	3,367,987

*Excludes those "other types" which have 1-20 percent white pine (above restocking size) but do not contain white pine restocking.

A total of 85,958,539 white pines have been distributed from state nurseries in the Northeastern States during the period 1931 to 1939, inclusive, as follows: Maine, 163,670; New Hampshire, 4,831,478; Vermont, 898,060; Massachusetts, 9,129,016; Connecticut, 711,437; New York, 58,292,230; New Jersey, 1,279,700; and Pennsylvania, 10,652,948.

Table 114b - Commercial Value of White Pine in Northeastern States

State	Pure White Pine (80-100% white pine)		Mixed Types Containing White Pine		White Pine (Above restocking size) in Other Types*	White Pine Restocking in All Types Except "Pure Pine Under 6" DBH"	Total (Including white pine restocking)
	6" and Over DBH	Under 6" DBH	30-79%	21-29%			
Me.	$ 34,136,480	$ 7,122,250	$ 44,515,240	$6,951,224	$6,855,206	$2,559,199	$102,109,599
N.H.	29,514,912	13,705,625	15,588,496	8,300,292	1,102,339	707,534	68,919,198
Vt.	3,351,376	1,836,325	8,968,232	2,195,620	1,576,022	412,279	18,339,854
Mass.	18,156,656	7,217,150	15,302,896	1,785,420	1,195,138	599,752	44,257,012
R.I.	1,494,416	10,900	-	-	415,919	80,818	2,002,053
Conn.	3,662,064	1,018,225	3,726,856	1,618,232	128,681	85,353	10,240,411
N.Y.	24,035,200	11,429,276	15,564,208	6,487,572	1,191,883	419,084	67,127,223
N.E.&N.Y.	114,351,104	42,329,750	101,665,928	27,338,360	12,445,188	4,365,024	302,995,354
N.J.	67,200	37,500	112,000	42,000	14,000	3,000	275,700
Pa.	5,807,648	1,001,076	1,572,388	2,744,644	1,105,410	226,292	12,465,458
All States	$120,225,952	$43,568,325	$103,350,296	$30,125,004	$13,662,588	$5,094,316	$315,720,411

*Excludes those "other types" which have 1-20 percent white pine (above restocking size) but do not contain white pine restocking.

Basis for estimating value of merchantable white pines: stumpage figured at normal value of $7.00 per M - average contents per acre, pure merchantable white pine - 16 M board feet; mixed white pine, 30-79% - 8 M board feet; mixed white pine, 21-29% - 4 M board feet; and white pine, above restocking size, in other types - 1 M board feet. Pure stands of white pine under 6" DBH given normal value of $25.00 per acre. Basis for estimating normal per acre value of white pine restocking: degree of restocking, light - $1.00, medium - $2.00, heavy - $3.00.

Table 115 - Relation of Total Cost of All Control Activities to Total Commercial Value of White Pine in Northeastern States

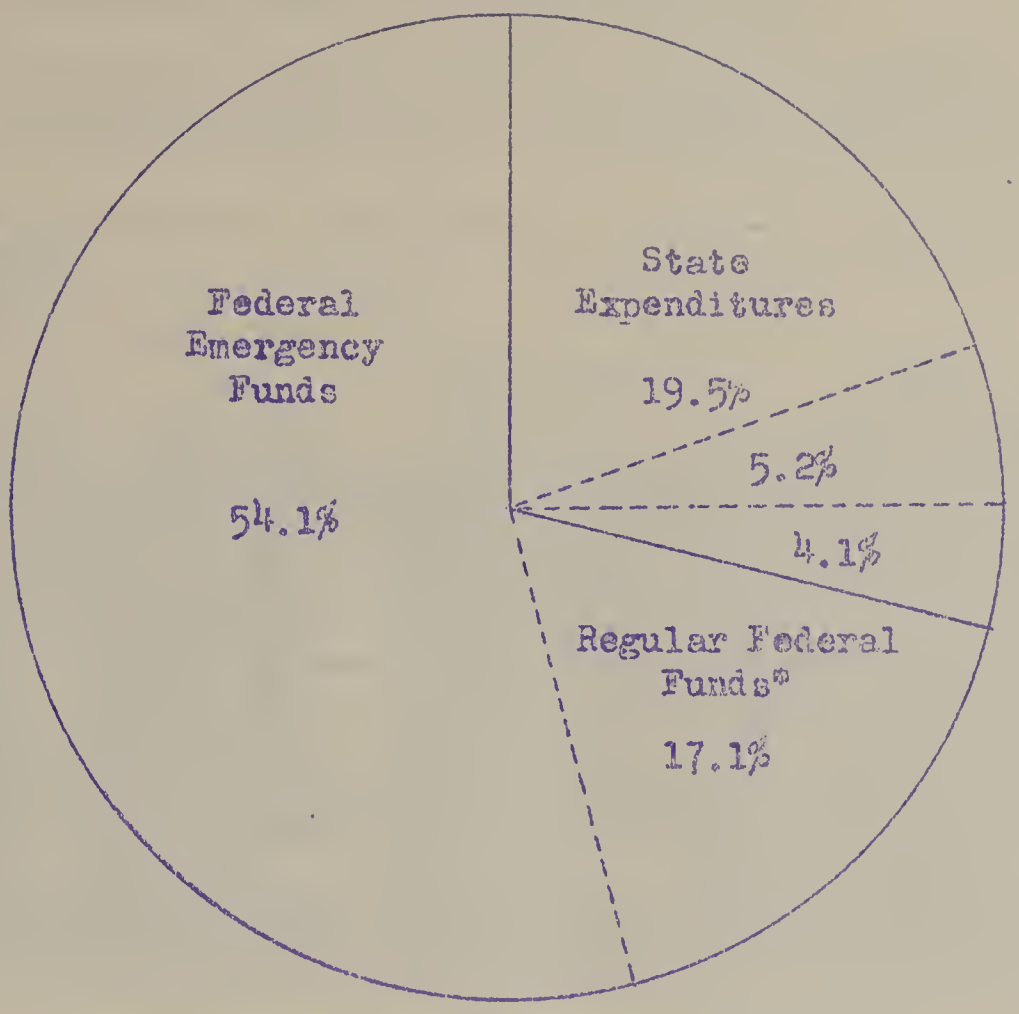
State	Acreage of White Pine	Commercial Value of White Pine	Total cost of All Control Activities	Percentage of Total Commercial Value of Pine Represented by Cost of All Control Activities	Percentage of Present Total Control Area Protected	
					Initial	Re-Ere
Maine	2.608.911	$102.109.599.	$1.581.118.39	1.5	74.2	20.6
N.H.	1.544.033	68.919.198.	1.979.417.38	2.9	92.1	24.8
Vt.	567.084	18.339.854.	750.043.19	4.1	49.9	15.5
Mass.	958.564	44.257.012.	1.268.343.06	2.9	99.5	46.7
R.I.	73.196	2.002.053.	269.566.37	13.5	94.7	81.2
Conn.	216.154	10.240.416.	848.314.76	8.3	84.9	62.9
N.Y.	1.315.957	57.127.222.	3.727.992.10	6.5	67.5	20.7
N.J.	7.600	275.700.	37.010.67	13.4	46.9	4.0
Penna.	375.628	12.455.437.	1.407.396.73	11.3	40.2	15.8
Totals	7.667.127	315.726.491.	11.869.202.65	3.8	76.8	27.4

The comparatively high percentage figures in Rhode Island, New Jersey and Pennsylvania may be attributed to the following facts. In Rhode Island, over a hundred thousand acres of potential pine land has been cleared of Ribes in addition to the protection of the pine area. The value of the potential pine acreage is not, of course, included in the pine values. In New Jersey and Pennsylvania, the pine areas are small and scattered necessitating larger proportionate protection zones. In both states, practically all the control work has been performed by inexperienced men employed on Emergency Programs. The cost of control activities in Pennsylvania and New Jersey prior to the beginning of Ribes eradication work in 1929 and 1934, respectively, is included in the total expenditure figures. Only 16,742 acres have been initially worked in New Jersey. The major control activities in that state comprise scouting, field studies, nursery sanitation, and informational and service work. In Pennsylvania, the Ribes are numerous and of large size. Many of the pine areas are in remote hilly sections at considerable distance from roads.

The total cost includes $6,422,204.99 Federal Emergency money expended on control work since 1933. This amount represents 54.1 percent of the total expenditures since 1918. A portion of the Emergency money could properly be charged to relief rather than control activities.

The basis for acreages and values of white pine are given on Page 161.

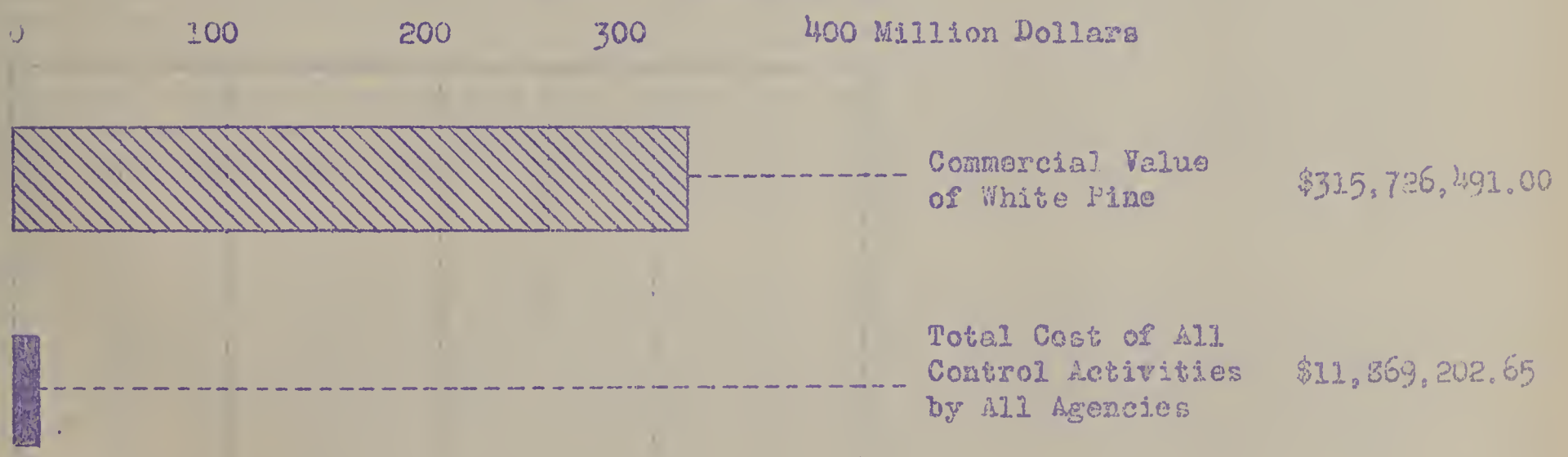
COOPERATIVE BLISTER RUST CONTROL EXPENDITURES IN NORTHEASTERN STATES, 1918-1939, INCLUSIVE.



Total Expenditures - $11,869,202.65

* Includes $13,002.57 by Forest and Park Services

Relation Commerical Value of White Pine to Total Cost of All Control Activities in Northeastern States 1918-1939, Inclusive.



Total control cost represents 3.8% commericial pine value.

Table 116 - Per Acre Cost of Ribes Eradication Work in Northeastern States During Period 1918 to 1939, Inclusive

(Based on Ribes eradication costs only and on the total costs of all control activities by all cooperating agencies)

State	Total Acreage Cleared of Ribes (Initial & Re-Erad.)	Number Ribes Pulled: Wild	Number Ribes Pulled: Cult.	Total Cost of Ribes Eradication*	Total Cost of All Control Activities	Ribes Per Acre (Wild only)	Cost Per Acre: Based on Eradication Costs Only	Cost Per Acre: Based on Total Expenditures For All Projects
Maine	2,853,976	54,452,184	150,058	$937,998.98	$1,581,118.39	19.1	.329	.554
N.H.	3,925,869	65,797,800	154,427	1,158,030.56	1,979,417.38	16.8	.295	.504
Vt.	570,015	12,697,086	16,691	409,615.02	750,043.19	22.6	.719	1.32
Mass.	2,857,720	21,330,011	276,305	650,369.20	1,263,343.06	7.5	.228	.444
R. I.	593,198	5,414,146	23,470	145,375.83	269,566.37	1.0	.250	.454
Conn.	744,588	6,411,765	38,645	323,614.96	845,314.76	8.6	.435	1.14
N.Y.	2,794,035	64,762,388	130,366	2,227,002.53	3,727,992.10	23.2	.797	1.33
Penn.-N.J.	14,339,401	226,235,382	791,962	5,855,237.08	10,424,795.25	15.8	.408	.727
N.J.	16,159	64,736	1,726	6,915.69	37,010.67	3.6	.381	2.04
Vt.	683,152	34,901,617	47,615	893,556.24	1,407,396.73	51.1	1.32	2.06
Totals	15,040,712	261,201,735	843,305	$6,755,711.01	$11,869,202.65	17.4	.449	.789

*Excludes nursery sanitation and Ribes nigrum elimination.

No satisfactory comparison can be made between the per acre costs in the various states, due to numerous factors directly affecting the cost of the eradication work. The lower per acre cost in Maine, New Hampshire, Massachusetts and Rhode Island may be attributed in part to the localization of the Ribes in certain sections and that under the Regular program large portions have been worked by scouting methods. In New York, Pennsylvania, and Vermont, the cost has been increased by the size and abundance of the Ribes, and in the first two states by the ruggedness of the topography and the inaccessibility of many of the control areas. The small size and scattered distribution of the pine areas in Pennsylvania, New Jersey, and Connecticut has likewise increased per acre costs in these states. Most of the control work in Pennsylvania and New Jersey has also been performed under various Emergency programs with an inexperienced personnel. In New Jersey, only a few thousand acres have been cleared of Ribes; the control activities being confined chiefly to pine and infection scouting, field studies, nursery sanitation, and informational and service activities by part-time employees. In 1933, the per acre cost in New England and New York, based on Ribes eradication work only and on the total area worked up to that time, amounted to 22.7 cents. By 1939, it had increased to 63.3 cents chiefly due to the less efficient work performed under the Emergency programs.

The compilation of per acre values on the basis of total costs of all control activities by all cooperating agencies is probably not justifiable, because such expenditures include among other items the cost of field surveys and studies, informational and service activities, nursery sanitation, canker elimination, and Ribes nigrum elimination which are not directly related to the regular Ribes eradication work and cannot in most instances be figured on a per acre basis.

TABLE #1
SHEET #1

TABLE #1
SUMMARY OF 1939 RIBES ERADICATION

State	Initial Eradication Work				Reeradication Work				Total			Percent Initial Erad. Worked	
	Acreage Worked	Number Ribes Destroyed		Number * 8-Hour Man-Days	Acreage Worked	Number Ribes Destroyed		Number 8-Hour Man-Days	Acreage Worked	Number Ribes Destroyed		Number 8-Hour Man-Days	
		Wild	Cult.			Wild	Cult.			Wild			**	***
Maine	37,006	1,617,090	1,772	10,701	52,031	946,758	659	10,441	89,037	2,563,848		21,142	1.3	1.5
New Hampshire	19,872	825,156	1,314	5,668	54,847	937,496	111	9,108	74,719	1,762,652		14,776	0.6	0.6
Vermont	22,113	1,057,275	308	6,419	9,337	387,155	138	2,452	31,450	1,444,430		8,871	2.5	2.6
Massachusetts	38,467	371,238	1,269	3,793	70,750	717,798	1,393	9,129	109,217	1,089,036		12,922	2.09	2.13
Rhode Island	4,511	11,294	348	1,218	658	1,012	32	147	5,169	12,306		1,365	1.4	1.4
Connecticut	23,950	135,677	336	2,067	34,567	452,522	321	5,675	58,517	588,199		7,742	4.8	6.5
New York	127,340	2,753,295	7,925	26,228	104,517	1,011,307	707	25,147	231,857	3,764,602		51,375	4.4	4.5
Pennsylvania	67,477	1,862,825	2,545	24,621	32,698	433,700	309	17,077	100,175	2,296,525		41,698	1.4	6.4
Total	340,736	8,633,850	15,817	80,715	359,405	4,887,748	3,670	79,176	700,141	13,521,598		176,891	2.6	2.6

* Number 8-hour man-days = $\frac{\text{hours worked per day} \times \text{number men}}{8}$

** Percentage of total white pine control acreage in State that was worked during 1939 (Percentages in this column based on acreage of control area in townships comprising "Permanent Pine Production Area")

*** Percentages in this column based on acreage of control area in townships comprising "Permanent Pine Production Area"

TABLE #1

TABLE #1
SHEET #2

SUMMARY OF 1939 RIBES ERADICATION

State	Ribes per Acre		Man-Days per Acre		Number of Camps				Number of Employees*					
									Laborers					
	Initial Eradication	Reeradication	Initial Erad.	Reeradication	C.C.C. and S.C.S.	W.P.A.	Rec.	Total	C.C.C. and S.C.S.	W.P.A.	Rec.	Total	All Supervisors	Total Employees
Maine	43.7	18.2	.29	.20	3	-	-	3	120	272**	70	462	20	482
New Hampshire	41.5	17.1	.29	.17	1	-	-	1	29	231	258	518	9	527
Vermont	47.8	41.5	.29	.26	-	-	-	-	-	178	34	212	4	216
Massachusetts	9.6	10.1	.10	.13	2	-	-	2	24	223***	-	247	9	256
Rhode Island	2.5	1.5	.27	.22	-	-	-	-	-	24	-	24	1	25
Connecticut	5.7	13.1	.09	.16	3	-	-	3	47	74	2	123	10	133
New York	21.6	9.7	.21	.24	24	-	-	24	576	310	75	961	70	1,031
Pennsylvania	27.6	13.3	.36	.52	33	-	-	33	840	181	23	1,044	49	1,093
TOTAL	25.3	13.6	.24	.22	66	-	-	66	1,636	1,493	462	3,591	172	3,763

* Enter the maximum number of persons on the pay roll at the peak of the season. Total number persons employed is not desired because the large turnover in W.P.A. camps would result in an exaggerated figure.

** Includes 55 town laborers assigned to W.P.A. projects.

*** Includes 7 clerks at Cambridge Office.

TABLE #2
SUMMARY OF 1939 RIBES ERADICATION BY PROGRAMS
(Including all work - Initial and Reeradication)

TABLE #2
SHEET #1

States	Total Acreage Worked (Initial and Reeradication.)	Regular and Cooperative				W.P.A.			
		Acreage Worked	No. Ribes Destroyed		Number 8-Hour Man-Days	Acreage Worked	No. Ribes Destroyed		Number 8-Hour Man-Days
			Wild	Cult.			Wild	Cult.	
Maine	89,037	7,645	119,781	79	1,147	68,634	1,650,160	8,101	4,545
New Hampshire	74,719	25,243	440,525	27	3,346	49,214	1,284,980	1,700	1,480
Vermont	31,450	1,581	36,091	12	206	29,869	1,408,339	950	1,405
Massachusetts	109,217	-	-	-	-	101,368	941,574	2,600	4,500
Rhode Island	5,169	-	-	-	-	5,169	12,300	200	100
Connecticut	58,517	1,380	85	-	6	44,276	310,000	657	192
New York	231,857	40,352	647,169	611	3,520	130,148	2,172,000	5,000	967
Pennsylvania	100,175	1,535	65,758	-	397	32,958	1,265,000	1,500	1,000
Total	700,141	77,736	1,309,409	929	8,622	461,636	9,044,353	35,778	15,189

Data for W.P.A. Program includes results of activities conducted under State W.P.A. Program in Connecticut as follows: Acreage worked - 40,995; wild Ribes destroyed - 217,000; cultivated Ribes destroyed - 657; and number 8 hour man days - 3500.

TABLE #2
SUMMARY OF 1939 RIBES ERADICATION BY PROGRAMS
(Including all work - Initial and Reeradication)

TABLE #2
SHEET #2

States	E.C.W. and S.C.S.				Totals			
	Acreage Worked	No. Ribes Destroyed		Number 8-Hour Man-Days	Acreage Worked	No. Ribes Destroyed		Number 8-Hour Man-Days
		Wild	Cult.			Wild	Cult.	
Maine	12,758	793,907	191	5,889	89,037	2,563,848	2,431	21,142
New Hampshire	262	38,124	-	161	74,719	1,762,652	1,425	14,776
Vermont	-	-	-	-	31,450	1,444,430	446	8,871
Massachusetts	7,849	147,464	-	2,129	109,217	1,089,036	2,662	12,522
Rhode Island	-	-	-	-	5,169	12,306	380	1,365
Connecticut	12,861	277,268	-	3,323	58,517	588,199	657	7,748
New York	61,357	945,315	1,327	28,368	231,857	3,764,602	8,632	52,313
Pennsylvania	65,682	965,730	1,264	33,837	100,175	2,296,525	2,854	41,630
Total	160,769	3,167,805	2,782	73,707	700,141	13,521,598	19,487	159,891

* See other side of sheet for separate summary of S.C.S. work

Results of Ribes Eradication Work Under S.C.S. Program - 1939

State	Acreage Worked	Number of Ribes Destroyed Wild	Cult.	Number S Work Man Days
N. Y.	2,528	121,130	144	1,23[illegible]
Penna.	2,549	75,076	-	847
Totals	5,077	196,206	144	2,080

Table #3
SUMMARY OF ALL OTHER CONTROL WORK FOR 1939.

TABLE #3
SHEET #1

States	Cultivated Black Currant Eradication				Nursery Sanitation						Eradication Survey	
	Number Inspections Made	Number Locations Found	No. Black Currants Destroyed	No. & Hr. Man-Days	No. Nurs. Worked	No. White Pines in Nurseries	No. Acres Worked	No. Ribes Destroyed Wild	No. Ribes Destroyed Cult.	No. & Hr. Man-Days	No. Acres Scouted W. P. P. Zones	No. & Hr. Man-Days
Maine	-	-	-	-	-	-	-	-	-	-	198,460	5,094
New Hampshire	-	-	-	-	1	1,500,000	110	13	-	1	171,672	5,764
Vermont	-	-	-	-	-	-	-	-	-	-	168,423	3,083
Massachusetts	67,641	213	640	287	6	1,311,000	629	8,285	-	128	138,972	3,285
Rhode Island	-	-	-	-	5	3,135	2473	11	-	21	-	-
Connecticut	-	-	-	-	7	2,729,298	2509	76	10	58	88,588	3,085
New York	3,117	25	128	103	4	16,962,000	9060	1,037	2	128	165,146	6,566
Pennsylvania	-	-	-	-	6	3,720,000	2990	346	-	172	93,733	3,882
Total	70,758	238	968	390	29	28,225,433	17,771	9,768	12	508	1,025,016	30,759

TABLE #3

SUMMARY OF ALL OTHER CONTROL WORK FOR 1939

TABLE #3
SHEET #2

State	Treatment Infected Trees					Checking					
						Advance		Post		Regular	
	No. Trees Examined	No. Trees Treated	No. Trees Removed	No. Cankers Removed	Number 8-Hour Man-Days	Acreage Checked	Number 8-Hour Man-Days	Acreage Checked	Number 8-Hour Man-Days	[illegible]	Number 8-Hour Man-Days
Maine	463	328	80	833	111						
New Hampshire	-	-	-	-	-						
Vermont	6,202	418	503	632	45						
Massachusetts	14,158	318	3,068	324	521						
Rhode Island	-	-	-	-	-						
Connecticut	-	-	-	-	-						
New York	122,206	11,722	1,500	16,725	1,361						
Pennsylvania	84,650	12,216	80	17,842	515						
TOTAL	227,679	25,002	5,231	36,356	2,553						

TABLE #4

TABLE #4
SHEET #1

SUMMARY EXPENDITURES FOR 1939

STATE	TOTAL			RECAPITULATION BY PROGRAM (FEDERAL FUNDS) EXPENDED				
	FEDERAL	STATE (INC. ALL COOP. FUNDS)	GRAND TOTAL	REGULAR AND COOPERATIVE	W.P.A. & E.R.A.	E.C.W. & S.C.S.	[illegible]	TOTAL
Maine	93,166.68	13,885.63	107,052.31	8,653.79*	68,582.37	15,930.52	-	84,512.89
New Hampshire	81,572.68	13,920.44	95,493.12	9,093.99**	72,140.44	338.26	-	72,478.69
Vermont	51,805.20	4,519.66	56,324.86	5,943.05	45,862.15	-	-	45,862.15
Massachusetts	76,196.34	7,850.52	84,046.86	7,943.86	63,610.05	4,642.43	-	68,252.48
Rhode Island	6,090.11	2,559.99	8,650.10	499.98	5,590.13	-	-	5,590.13
Connecticut	64,096.51	7,898.13	71,994.64	3,734.75	50,724.35***	9,637.41	-	60,361.76
New York	205,165.27	54,378.97	259,544.24	11,489.53	124,396.91	69,278.83	-	193,675.74
Pennsylvania	153,544.23	5,653.84	159,198.07	6,660.52	48,720.54	98,163.17	-	146,883.71
TOTAL	731,637.02	110,667.18	842,304.20	54,019.47	479,626.94	197,990.61	-	677,617.55

* Includes $141.25 expended by U. S. Forest Service.
** Includes $495.20 expended by U. S. Forest Service.
*** Includes $43,747.08 expended on project conducted under State W.P.A. Program.

TABLE #4

SUMMARY EXPENDITURES FOR 1939

TABLE #4
SHEET #2

STATE	RECAPITULATION BY ACTIVITIES (FEDERAL & STATE)						
	SUPN. INCL. STATE AND DISTRICT LEADERS	RIBES ERADICATION	CULT. BLACK CURRANT ERADICATION	NURSERY SANITATION	CANKER ELIMINATION	WHITE PINE BLISTER RUST CONTROL	[illegible]
Maine	20,121.38	61,087.34	-	-	312.33	19,057.11	[illegible]
New Hampshire	21,051.25	49,293.51	-	4.64	-	23,772.70	[illegible]
Vermont	14,407.01	29,736.55	-	-	154.84	10,[illegible]	[illegible]
Massachusetts	16,607.63	47,826.75	1,752.15	655.42	2,106.49	33,[illegible]	[illegible]
Rhode Island	3,569.52	4,979.22	-	101.36	-	-	[illegible]
Connecticut	7,423.62	27,629.68	-	290.00	-	17,[illegible]	[illegible]
New York	30,196.03	156,443.19	427.40	521.51	5,475.13	89,[illegible]	[illegible]
Pennsylvania	15,845.68	103,947.99	-	393.86	1,908.07	14,[illegible]	[illegible]
TOTAL	172,222.17	483,840.83	1,809.55	1,969.79	9,956.86	126,[illegible]	[illegible]

TABLE #1A

TABLE #1A
SHEET #1

SUMMARY OF ALL RIBES ERADICATION 1915-1939 (Inclusive)

State	Total Acreage White Pine (1)	Acreage Wh. Pine Worth Protection (2)	Acreage Control Areas (Wh. Pine and Protective Zones)	Acreage Reported Initially Worked	Initial Eradication		
					Net Acreage Worked in Control Areas	Number Days Worked	Number Man-Days
Maine	2,606,911	1,075,030	2,772,637	2,281,444	2,056,668	[illegible]	[illegible]
New Hampshire	1,544,033	1,445,059	3,185,649	3,136,388	2,934,029	[illegible]	[illegible]
Vermont	567,084	185,709	871,616	434,618	434,618	[illegible]	[illegible]
Massachusetts	958,564	742,185	1,865,127	1,987,361	1,856,689	[illegible]	[illegible]
Rhode Island	90,866	90,866	333,755	322,337	315,048	[illegible]	[illegible]
Connecticut	216,154	96,056	503,737	427,706	427,706	[illegible]	[illegible]
New York	1,315,957	677,321	2,925,281	2,189,605	1,974,475	[illegible]	[illegible]
New Jersey	7,600	6,471	35,542	16,742	16,742	[illegible]	[illegible]
Pennsylvania	375,628	175,874	1,156,984	501,514	455,523	[illegible]	[illegible]
TOTAL	7,684,797	4,700,584	13,652,432	11,297,735	10,452,698	[illegible]	[illegible]

(1) Data based on cartographical survey of 1925-1927, except in Rhode Island and New Jersey.

(2) Data taken from status of control summaries submitted to Cambridge Office by various state and district leaders in December, 1933.

TABLE #1A

SUMMARY OF ALL RIBES ERADICATION 1918-1939 (INCLUSIVE)

TABLE #1A
SHEET #2

State	Reeradication				Totals				Percent Initial Eradi. Worked*	Per Acre			
	Acreage Worked	Number Ribes Destroyed		Number 8-Hour Man-Days	Net Acreage Worked in Control Areas	Number Ribes Destroyed		Number 8-Hour Man-Days		Ribes		Man-Days	
		Wild	Cult.			Wild	Cult.			Initial Eradication	Re-eradication	Init. Eradication	Re-eradication
Maine	572,532	10,336,886	13,631	109,424	2,629,200	54,452,184	150,058	346,542	74.2	18.1	16.1	.10	.19
New Hampshire	759,481	10,545,126	5,321	92,341	3,723,510	65,797,800	154,427	382,926	92.1	17.6	13.4	.09	.12
Vermont	135,397	2,513,014	2,007	39,823	570,015	12,897,086	16,691	145,573	49.9	21.9	16.6	.24	.29
Massachusetts	870,359	5,000,083	20,775	74,009	2,727,048	21,330,011	278,305	198,472	93.5	7.2	5.7	.06	.09
Rhode Island	270,861	334,020	9,751	47,229	556,809	584,148	23,470	67,477	91.7	1.8	1.2	.06	.17
Connecticut	316,882	4,067,338	9,452	82,391	744,588	6,411,765	38,645	121,260	84.9	8.1	12.8	.09	.26
New York	604,430	8,053,580	11,956	149,842	2,578,905	64,762,388	130,366	798,037	67.5	25.1	13.3	.30	.25
New Jersey	1,417	16,956	15	392	18,159	64,736	1,725	1,716	47.0	3.7	12.0	.08	.28
Pennsylvania	181,638	5,022,327	2,729	135,033	647,461	34,901,617	47,615	420,377	84.8	54.8	27.6	.57	.74
TOTAL	3,742,997	45,889,330	75,672	730,484	14,225,695	261,201,735	841,305	2,482,360	76.9	17.4	12.3	.16	.20

* Percentage of total white pine control area in State that has been worked initially.

TABLE #2A

SUMMARY OF ALL RIBES ERADICATION BY PROGRAMS 1918 - 1939 INCLUSIVE
(Initial and Reeradication)

TABLE #2A
SHEET #1

State	Total Acreage Reported Worked (Initial and Reeradi-cation	Regular and Cooperative *				W.P.A. and [illegible] **			
		Acreage Worked	Number Ribes Destroyed		Number 8-Hour Man-Days	Acreage Worked	Number [illegible] Destroyed		Number 8-Hour Man-Days
			Wild	Cult.			Wild	[illegible]	
Maine	2,853,976	1,848,372	21,588,909	120,908	86,324	516,650	18,426,575	[illegible]	107,606
New Hampshire	3,925,869	3,265,872	42,312,320	145,434	214,352	492,016	14,576,545	[illegible]	99,206
Vermont	570,015	226,787	2,355,229	11,143	29,995	230,629	6,703,634	[illegible]	69,516
Massachusetts	2,857,720	2,261,321	13,939,767	247,940	101,949	421,147	4,769,462	[illegible]	56,654
Rhode Island	593,198	292,433	206,652	12,356	10,539	50,677	82,953	[illegible]	6,554
Connecticut	744,588	270,234	2,070,426	22,394	23,955	170,657	1,204,560	[illegible]	27,472
New York	2,794,035	1,224,056	22,390,225	64,694	254,834	752,883	20,421,837	[illegible]	180,483
New Jersey	18,159	-	-	-	-	5,042	25,021	[illegible]	1,243
Pennsylvania	663,152	85,000	4,460,187	7,271	16,180	195,298	12,437,699	[illegible]	74,516
TOTAL	15,040,712	9,477,075	109,343,715	632,140	738,128	2,837,029	78,661,065	[illegible]	627,512

* Includes work performed under A.R.A. Program - see other side for separate summary.
** Includes work performed under State W.P.A. and E.Y.A. Programs - see other side for separate [illegible].

Results of Ribes Eradication Work Under A.A.A. Program (Included under "Regular Cooperative" in Table 2A - Sheet 1

State	Acreage Worked	Ribes Destroyed Wild	Ribes Destroyed Cult.	Number 8 Hour Man Days
R.I.....	2,369	6,177	-	465
Conn.....	3,143	10,627	112	256
N.Y.....	3,659	67,503	64	2,509
Penna.....	7,182	41,963	882	1,106
Totals.....	16,353	126,270	1,058	4,336

Results of Ribes Eradication Work Under State W.P.A. Program (Included under W.P.A. and E.R.A. in Table 2A - Sheet

State	Acreage Worked	Ribes Destroyed Wild	Ribes Destroyed Cult.	Number 8 Hour Man Days
Conn.....	92,239	413,364	3,357	9,980
N.Y.....	135	12,915	-	104
Penna.....	2,944	984,434	-	2,304
Totals.....	95,368	1,411,213	3,357	12,388

Results of Eradication Work Under N.Y.A. Program (Included under W.P.A. and E.R.A. in Table 2A - Sheet 1.)

State	Acreage Worked	Ribes Destroyed Wild	Ribes Destroyed Cult.	Number 8 Hour Man Days
Penna.....	348	4,242	-	54

Results of Ribes Eradication Work Under C.W.A. & E.R.A. Programs (Included under W.P.A. and E.R.A. in Table

State	Acreage Worked	Ribes Destroyed Wild	Ribes Destroyed Cult.	Number 8 Hour Man Days
Maine.....	2,549	66,688	-	401
Mass.....	2,907	79,233	306	2,523
Conn.....	16,118	48,193	1,556	3,110
N.Y.....	6,677	138,709	44	1,736
Totals.....	28,251	332,723	1,906	7,770

TABLE #2A
SHEET #2

TABLE #2A

SUMMARY OF ALL RIBES ERADICATION BY PROGRAMS 1915 - 1939 INCLUSIVE

(Initial and Reeradication)

State	E.C.W. and S.C.S. *				P.W.A. or N.R.A.				Total [illegible] Program (W.P.A. [illegible] C.C.C.)			
	Acreage Worked	Number Ribes Destroyed		Number 8-Hour Man-Days	Acreage Worked	Number Ribes Destroyed		Number 8-Hour Man-Days	Acreage Worked	Number Ribes Destroyed		Number 8-Hour Man-Days
		Wild	Cult.			Wild	Cult.			Wild	Cult.	
Maine	417.586	12.014.535	10.993	142.186	69.368	2.421.865	1.992	10.426	1.005.604	[illegible]	29.150	260.218
New Hampshire	122.110	7.541.001	458	62.931	45.871	1.367.933	3	6.435	659.997	[illegible]	3.193	168.574
Vermont	86.062	3.363.278	591	41.152	26.537	474.945	-	4.910	343.2[illegible]	[illegible]	4.549	115.578
Massachusetts	77.491	1.619.561	3.376	32.162	97.761	1.001.221	1.254	5.677	596.399	[illegible]	20.364	96.523
Rhode Island	237.327	247.401	6.766	46.474	12.761	47.112	407	1.560	300.766	[illegible]	11.114	56.938
Connecticut	290.497	2.526.640	6.294	67.141	13.170	309.810	-	2.692	474.3[illegible]	[illegible]	16.261	97.305
New York	770.263	21.165.593	31.630	352.840	46.833	753.737	5.549	9.860	1.569.979	[illegible]	8.672	543.183
New Jersey	381	19.795	304	247	12.736	6.853	1.170	126	18.159	[illegible]	1.776	1.716
Pennsylvania	382.350	15.359.569	25.033	322.012	17.474	2.594.171	2.361	7.859	595.[illegible]	[illegible]	40.[illegible]	404.197
TOTAL	2.384.097	64.188.673	87.765	1.067.145	342.511	9.007.652	12.676	49.575	5.563.637	[illegible]	136.[illegible]	1.744.232

*See other side of sheet for separate summary of S.C.S. work.

RESULTS OF RIBES ERADICATION WORK UNDER S.C.S. PROGRAM

State	Acreage Worked	Ribes Destroyed Wild	Ribes Destroyed Cult.	Number 8 Hour Man Days
N.Y.....	9,017	383,850	205	5,294
Penna.....	8,740	283,477	155	4,821
Totals.....	17,757	667,327	360	10,115

TABLE #3A

SUMMARY OF ALL OTHER CONTROL WORK, 1918-1939, INCLUSIVE

TABLE #3A
SHEET #1

State	Cultivated Black Currant Eradication					Nursery Sanitation							
	Number Inspections Made	Number Locations Found	Number Black Currants Destroyed		Number 8-Hour Man-Days	No. of Nurseries		No. Acres Worked			Number Trees Destroyed		Number 8-Hour Man-Days
			Nigrum	Other		Sanitation Zone Maintained	Sanitation Zone Abandoned	Nurseries Maintaining Zones	Nurs. Which Abandoned Zones	Total Acreage	Wild	Cult.	
Maine	-	-	-	-	-	2	5	409	766	1,532	114,710	67	444
New Hampshire	-	-	-	-	-	3	-	914	-	2,228	1,495	4	272
Vermont	-	-	-	-	-	1	-	700	-	2,230	4,400	75	409
Massachusetts	724,811	6,636	42258	413	7,209	11	8	8,450	3,300	8,037	49,151	291	1,253
Rhode Island	110,137	1,917	16219	1093	1,929	5	1	2,273	95	17,773	4,400	700	430
Connecticut	318,344	(1) 32,695	7464	42397	14,610	12	6	3,966	3,213	58,589	16,400	1,500	2,655
New York	526,517	5,127	37058	761	5,245	7	1	10,577	630	92,591	195,400	1,500	6,997
New Jersey	-	-	-	-	-	2	-	795	-	1,665	2,400	14	127
Pennsylvania	-	-	-	-	-	9	5	4,136	1,527	20,219	21,400	169	1,907
TOTAL	1,679,809	46,375	102999	44664	28,993	52	26	32,220	9,531	204,650	447,356	2,720	16,504

(1) Survey in Connecticut included all cultivated Ribes.

TABLE #3A

TABLE #3A
SHEET #2

SUMMARY OF ALL OTHER CONTROL WORK, 1918-1939 (INCLUSIVE)

State	Preeradication Survey		Treatment Infected White Pine				
	Number Acres Mapped White Pine and Protection Zones	Number 8-Hour Man-Days	Number Trees Examined	Number Trees Treated	Number Trees Removed	Number Cankers Removed	[illegible]
Maine	2,904,026	30,795	155,141	21,438	11,162	50,495	[illegible]
New Hampshire	1,184,765	31,788	28,581	638	5,731	711	[illegible]
Vermont	1,404,455	18,026	206,263	13,749	38,543	21,930	[illegible]
Massachusetts	746,510	15,671	4,751,450	16,210	30,956	21,345	[illegible]
Rhode Island	225,660	2,264	-	-	-	-	[illegible]
Connecticut	648,106	20,148	-	-	-	-	[illegible]
New York	3,574,588	32,067	1,470,670	187,981	145,755	251,452	[illegible]
New Jersey	-	-	-	-	-	-	[illegible]
Pennsylvania	659,107	39,059	863,620	121,717	32,562	537,010	[illegible]
TOTAL	10,409,230	189,818	7,475,725	366,733	264,712	933,993	[illegible]

TABLE #4A

TABLE #4A
SHEET #1

SUMMARY OF ALL EXPENDITURES, 1918-1939 (INCLUSIVE)

STATE	TOTAL			RECAPITULATION BY PROGRAMS (FEDERAL ONLY)				
	FEDERAL	STATE (INCL. ALL COOP. FUNDS)	GRAND TOTAL	(1) REGULAR	W.P.A., C.W.A. AND E.R.A.	E.C.W. S.C.S.	P.W.A.	TOTAL EMERGENCY PROGRAMS (W.P.A.-E.C.W.-P.W.A.
Maine	1,243,920.82	337,197.57	1,581,118.39	296,740.56	545,269.82	329,751.49	[illegible]	947,150.26
New Hampshire	1,223,886.83	755,530.55	1,979,417.38	472,648.79	535,288.83	147,352.00	[illegible]	751,238.04
Vermont	599,819.86	150,223.33	750,043.19	144,432.32	334,151.37	89,037.97	[illegible]	455,387.54
Massachusetts	853,966.34	414,376.72	1,268,343.06	358,088.86	353,325.91	60,476.68	[illegible]	495,877.48
Rhode Island	204,761.71	64,804.66	269,566.37	47,499.91	39,891.84	104,941.96	[illegible]	157,261.80
Connecticut	678,469.88	169,844.88	848,314.76	122,436.11	376,069.43 (2)	157,484.95	[illegible]	556,033.77
New York	2,327,999.42	1,399,992.68	3,727,992.10	527,408.89	971,325.76	736,930.52	[illegible]	1,800,590.53
New Jersey	20,182.52	16,828.15	37,010.67	9,220.92	7,303.37	576.15	[illegible]	10,961.60
Pennsylvania	1,296,097.65	111,299.08	1,407,396.73	63,481.62	399,455.20	787,686.80	[illegible]	1,232,616.03
TOTAL	8,449,105.03	3,420,097.62	11,869,202.65	2,041,957.98	3,595,114.55	2,414,268.54	[illegible]	6,407,147.05

(1) Includes A.R.A. expenditures as listed on reverse side of sheet.

(2) Includes $192,495.94 W.P.A. funds expended on project conducted under State W.P.A. Program

A.R.A. Expenditures Included Under Heading "Regular" on Other Side of Sheet

State	Amount
R. I.....	$1,640.00
Conn.....	1,152.71
New York.....	8,010.58
Penna.....	4,254.65
Total.....	$15,057.94

TABLE #4A

TABLE #4A
SHEET #2

SUMMARY OF ALL EXPENDITURES, 1918-1939 (INCLUSIVE)

STATE	RECAPITULATION BY ACTIVITIES (FEDERAL AND STATE)						
	SUPERVISION (INCL. STATE & DIST. LEADERS)	RIBES ERADICATION	C.B.C. ERADICATION	NURSERY SANITATION	CANKER ELIMINATION	PRE-ERADICATION SURVEY	OTHER (INCL. FIELD & MISC.)
Maine	359.377.98	937.998.98	-	1.454.50	6.360.23	135.563.95	[illegible]
New Hampshire	531.697.94	1.158.030.56	-	919.75	779.37	134.551.63	[illegible]
Vermont	195.369.18	409.615.02	-	1.284.18	7.046.43	69.564.74	[illegible]
Massachusetts	385.513.14	650.369.20	31.488.84	5.598.15	35.391.66	71.736.63	[illegible]
Rhode Island	60.646.27	143.375.83	10.327.88	1.928.10	-	13.948.15	[illegible]
Connecticut	146.140.99	323.844.96	75.299.46	8.933.03	-	106.734.61	[illegible]
New York	595.325.77	2.227.002.53	27.736.27	20.806.71	47.297.28	152.029.03	[illegible]
New Jersey	22.897.12	6.915.69	-	461.54	-	-	[illegible]
Pennsylvania	148.610.44	893.558.24	-	9.306.76	18.167.15	152.495.50	[illegible]
TOTAL	2.445.583.83	6.755.711.01	144.852.45	50.692.72	115.064.12	836.627.13	[illegible]

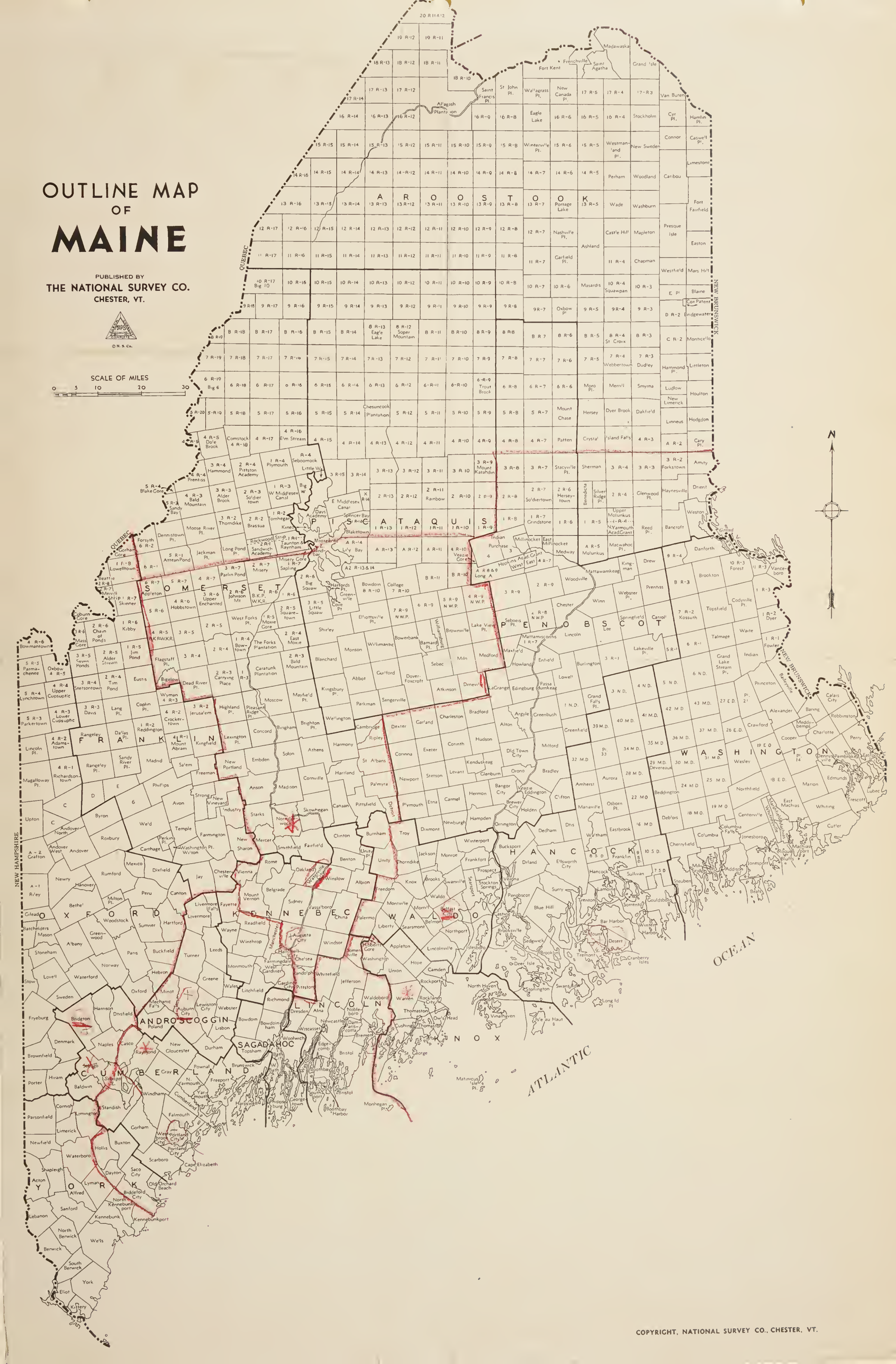
TABLE #4B

TABLE #4B
SHEET #1

STATUS OF BLISTER RUST CONTROL 1916 - 1939 (INCLUSIVE)

State	Control Area Including Border Zones (Acres)	Net Control Area Initially Protected (Acres)	Control Areas Reworked Subsequent to Initial Protection (Acres)	No. 8-Hour Man-Days (Man-Days)	Ribes Destroyed (Wild & Cultivated) (Number)	Remaining Control Area Needing Initial Protection (Acres)	Estimated Protected Area Now on Maintenance Basis* (Acres)
Maine	2,772,637	2,056,668	572,532	346,542	54,602,242	715,969	
New Hampshire	3,185,640	2,934,029	789,461	382,926	65,952,227	251,611	
Vermont	871,616	434,618	135,397	145,573	12,913,777	436,998	
Massachusetts	1,865,127	1,856,689	870,359	198,472	21,608,316	8,438	
Rhode Island	333,766	315,948	270,861	67,477	607,618	17,818	
Connecticut	503,737	427,706	316,582	121,260	6,450,430	76,031	
New York	2,925,283	1,974,475	604,430	798,017	64,892,754	950,808	
New Jersey	35,642	16,742	1,417	1,716	66,464	16,900	
Pennsylvania	1,158,984	465,823	181,638	420,377	34,949,232	693,161	
TOTAL	13,652,432	10,482,698	3,742,997	2,482,360	262,043,040	3,169,734	

*Maintenance - Any portion of a control area that has through artificial (eradication of Ribes) or natural (shading out of Ribes) acquired a status wherein the scarcity of Ribes assures effective blister rust control for [illegible] such that no further work (except perhaps scouting) is expected to be needed during the current forest cycle. [illegible] for a varying number of years until, after a major ecological change, a renewed increase and growth of Ribes [illegible] and these areas then revert to a rework status.



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STATE OF NEW HAMPSHIRE

Map Indicating

RANGE OF WHITE PINE



STATE OF NEW HAMPSHIRE

Map Indicating

Status of

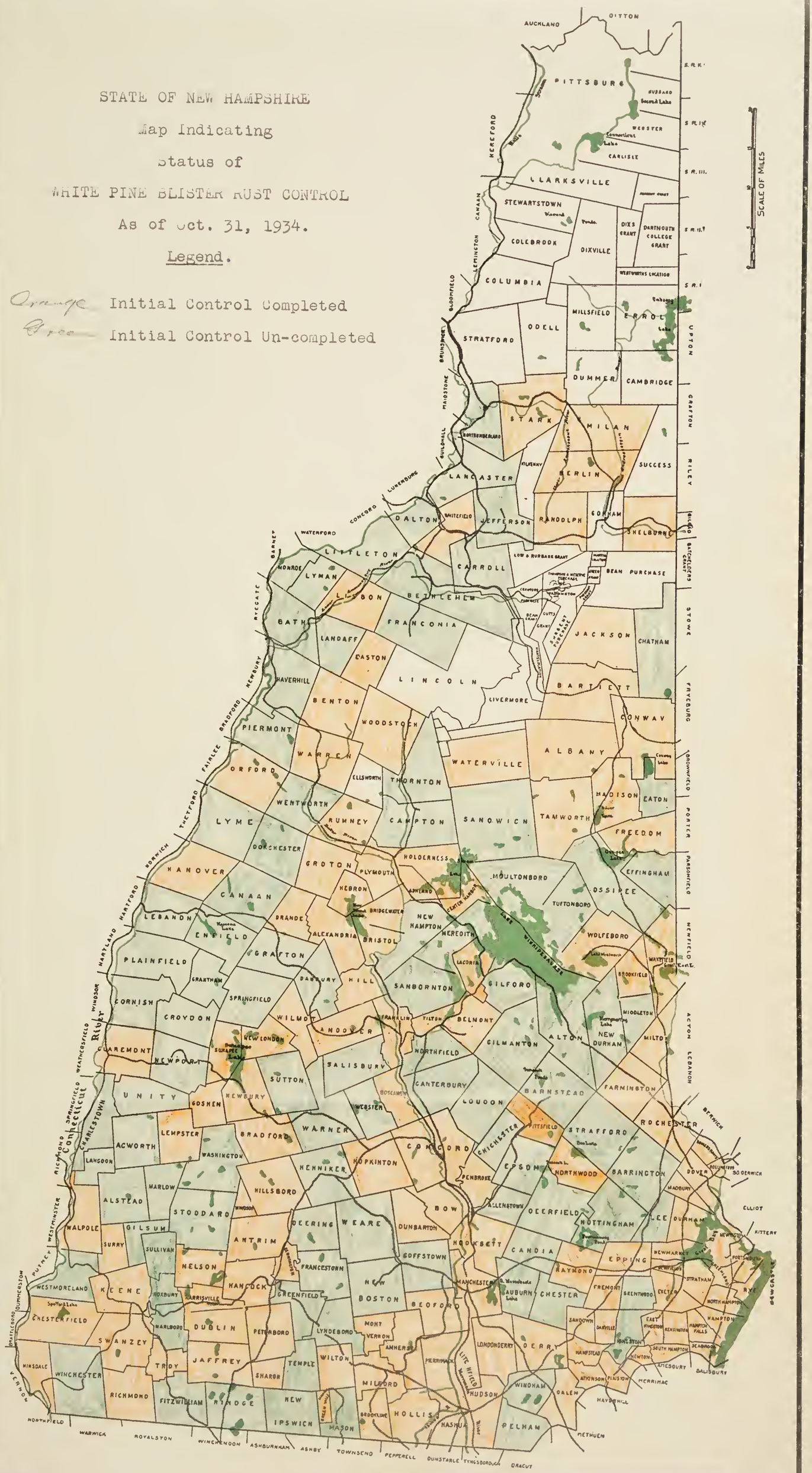
WHITE PINE BLISTER RUST CONTROL

As of Oct. 31, 1934.

Legend.

Orange — Initial Control Completed

Green — Initial Control Un-completed


SCALE OF MILES
AUCKLAND
DITTON
PITTSBURG
HUBBARD
Second Lake
WEBSTER
Connecticut Lake
CARLISLE
CLARKSVILLE
STEWARTSTOWN
COLEBROOK
DIXVILLE
DIX'S GRANT
DARTMOUTH COLLEGE GRANT
WENTWORTHS LOCATION
COLUMBIA
MILLSFIELD
ERROL
ODELL
STRATFORD
DUMMER
CAMBRIDGE
STARK
MILAN
BERLIN
SUCCESS
LANCASTER
DALTON
JEFFERSON
RANDOLPH
GORHAM
SHELBURNE
LITTLETON
CARROLL
BEAN PURCHASE
LYMAN
BETHLEHEM
BATH
FRANCONIA
LANDAFF
JACKSON
CHATHAM
EASTON
LINCOLN
BARTLETT
HAVERHILL
LIVERMORE
CONWAY
BENTON
WOODSTOCK
PIERMONT
ALBANY
WARREN
WATERVILLE
ORFORD
ELLSWORTH
THORNTON
MADISON
EATON
WENTWORTH
RUMNEY
CAMPTON
SANDWICH
TAMWORTH
LYME
FREEDOM
DORCHESTER
GROTON
NOLDERNESS
PLYMOUTH
EFFINGHAM
HANOVER
MOULTONBORO
HEBRON
CANAAN
OSSIPEE
TUFTONBORO
LEBANON
BRIDGEWATER
NEW HAMPTON
WOLFEBORO
ENFIELD
BRISTOL
MEREDITH
PLAINFIELD
GRAFTON
ALEXANDRIA
SANBORNTON
GILFORD
CORNISH
SPRINGFIELD
HILL
CROYDON
WILMOT
FRANKLIN
BELMONT
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NEW DURHAM
CLAREMONT
NEWPORT
NEW LONDON
GILMANTON
NORTHFIELD
SALISBURY
SUTTON
CANTERBURY
LOUDON
BARNSTEAD
FARMINGTON
UNITY
GOSHEN
NEWBURY
WEBSTER
ROCHESTER
LEMPSTER
BRADFORD
WARNER
STRAFFORD
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EPSOM
NORTHWOOD
BARRINGTON
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PENBROKE
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ALLENSTOWN
ALSTEAD
STODDARD
WINDSOR
BOW
DEERFIELD
NOTTINGHAM
LEE
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WALPOLE
GILSUM
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WEARE
DUNBARTON
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ELLIOT
SURRY
SULLIVAN
ANTRIM
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KITTERY
NELSON
FRANCESTOWN
GOFFSTOWN
EPPING
NEWMARKET
PORTSMOUTH
RAYMOND
KEENE
HANCOCK
MANCHESTER
AUBURN
CHESTER
STRATHAM
WESTMORELAND
ROXBURY
HARRISVILLE
GREENFIELD
NEW BOSTON
BEDFORD
FREMONT
SEABROOK
RYE
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MARLBORO
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PETERBORO
LYNDEBORO
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DERRY
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DANVILLE
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KENSINGTON
HAMPTON
HAMPTON FALLS
SWANZEY
TROY
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TEMPLE
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SEABROOK
WINSDALE
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SHARON
MILFORD
HAMPSTEAD
NEWTON
ATKINSON
PLAISTOW
MERRIMAC
SALISBURY
RICHMOND
FITZWILLIAM
RINDGE
NEW IPSWICH
HOLLIS
HUDSON
WINDHAM
SALEM
PELHAM
MASON
BROOKLINE
NASHUA
MAYDHILL
NORTHFIELD
WARWICK
ROYALSTON
WINCHENDON
ASHBURNHAM
ASHBY
TOWNSEND
PEPPERELL
DUNSTABLE
TYNGSBOROUGH
DRACUT
METHUEN
Connecticut River
Merrimack River
Lake Winnipesaukee
Lake Winnisquam
Squam Lake
Newfound Lake
Lake Waukewan
Lake Winnipesaukee
Lake Asquam



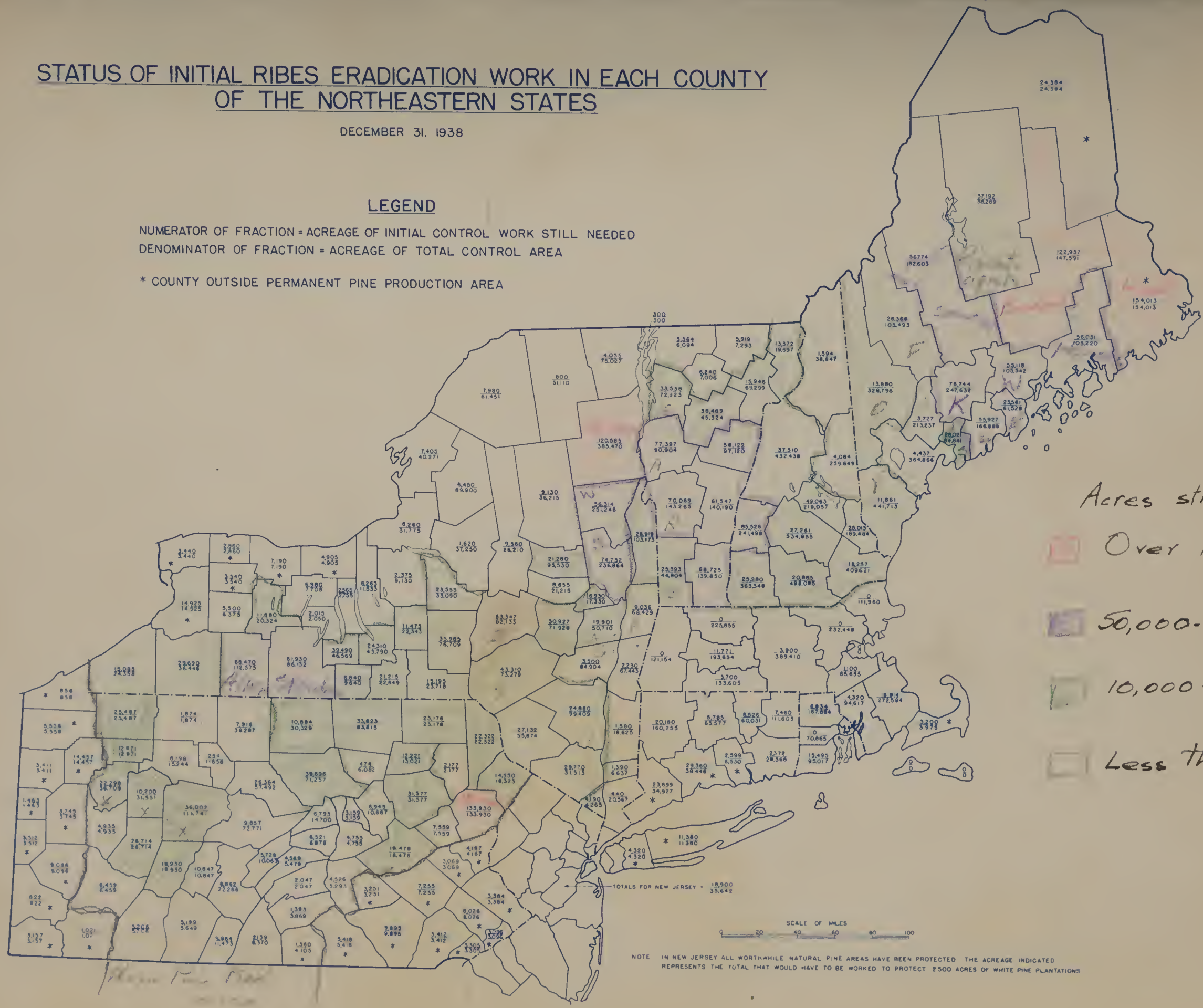
STATUS OF INITIAL RIBES ERADICATION WORK IN EACH COUNTY OF THE NORTHEASTERN STATES

DECEMBER 31, 1938

LEGEND

NUMERATOR OF FRACTION = ACREAGE OF INITIAL CONTROL WORK STILL NEEDED
DENOMINATOR OF FRACTION = ACREAGE OF TOTAL CONTROL AREA

* COUNTY OUTSIDE PERMANENT PINE PRODUCTION AREA



Acres still to be done

- Over 100,000
- 50,000 - 100,000
- 10,000 - 50,000
- Less than 10,000

ANNUAL REPORT

ON

WHITE PINE BLISTER RUST CONTROL

SOUTHERN APPALACHIAN DISTRICT

1939

By
Roy G. Pierce, Pathologist
Division of Plant Disease Control

June 1940

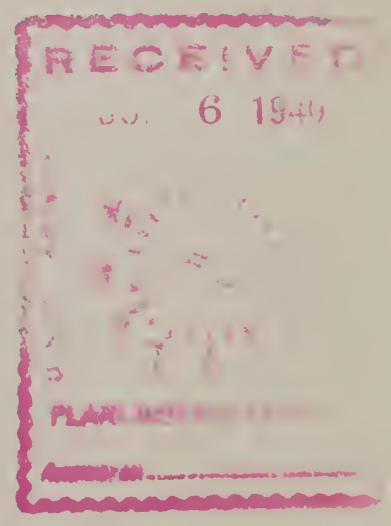


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West Virginia 30 year old white pine seed trees with abundant understory of young pine. Huntersville. Roll 12. No. 11

by Dr. S. B. Fracker

S U M M A R Y

Work in 1939 in the Southern Appalachian States proceeded along the same lines as in past years, stressing pine surveys, followed by Ribes eradication where needed, and checking. Lesser attention was paid to nursery sanitation, canker elimination and informational services.

Many forms of work were carried on in Delaware, Georgia, Kentucky, Maryland, North Carolina, Tennessee, Virginia and West Virginia. Nothing was done in District of Columbia or South Carolina in 1939.

Thanks to the work of Mr. J. Curtis Ball who initiated the grid method of surveying in Georgia in November 1938, great progress has been made in pine surveys by this method in Georgia, North Carolina and Virginia. A modified grid system is being carried on in West Virginia. Copies of the grids as finished are forwarded weekly or monthly to the Richmond office for filing.

Good progress has been made in putting on ledger sheets the eradication data. As copies are made in the field duplicates are sent to Richmond Office for safe keeping and study.

We have cooperated with various governmental agencies in the National Parks and National Forests, and with the Soil Conservation Service and the State of Maryland on its leasehold of Resettlement lands. We have also cooperated with the State officials in each of the States in which we are operating, under formal Memorandum of Understanding.

In 1939, 3,129,928 wild ribes bushes and 100,923 cultivated bushes were destroyed from 491,106 acres, at an expenditure of 34,218 eight-hour man-days at a cost of $84,218.21, which is at an average of 17.1¢ per acre. Of this 2,489,852 wild bushes and 38,308 cultivated bushes were destroyed on initial work from 359,132 acres in 22,588, eight-

hour man-days.

Preeradication surveys were carried on in eight States, there being mapped 495,320 acres, and 21,448, eight-hour man-days used at a cost of $52,410.44. Nursery sanitation was carried on in six States, 27 nurseries examined, 7,836 acres worked, 7,755 wild ribes and 114 cultivated ribes removed in 129 eight-hour man-days. There were 452,171 white pine growing in these nurseries.

Infected white pines were treated in Maryland and Virginia in the amount of 14,408, 70,558 cankers being removed. In addition 2,704 badly infected trees were removed. The number of eight-hour man-days labor amounted to 1,797.

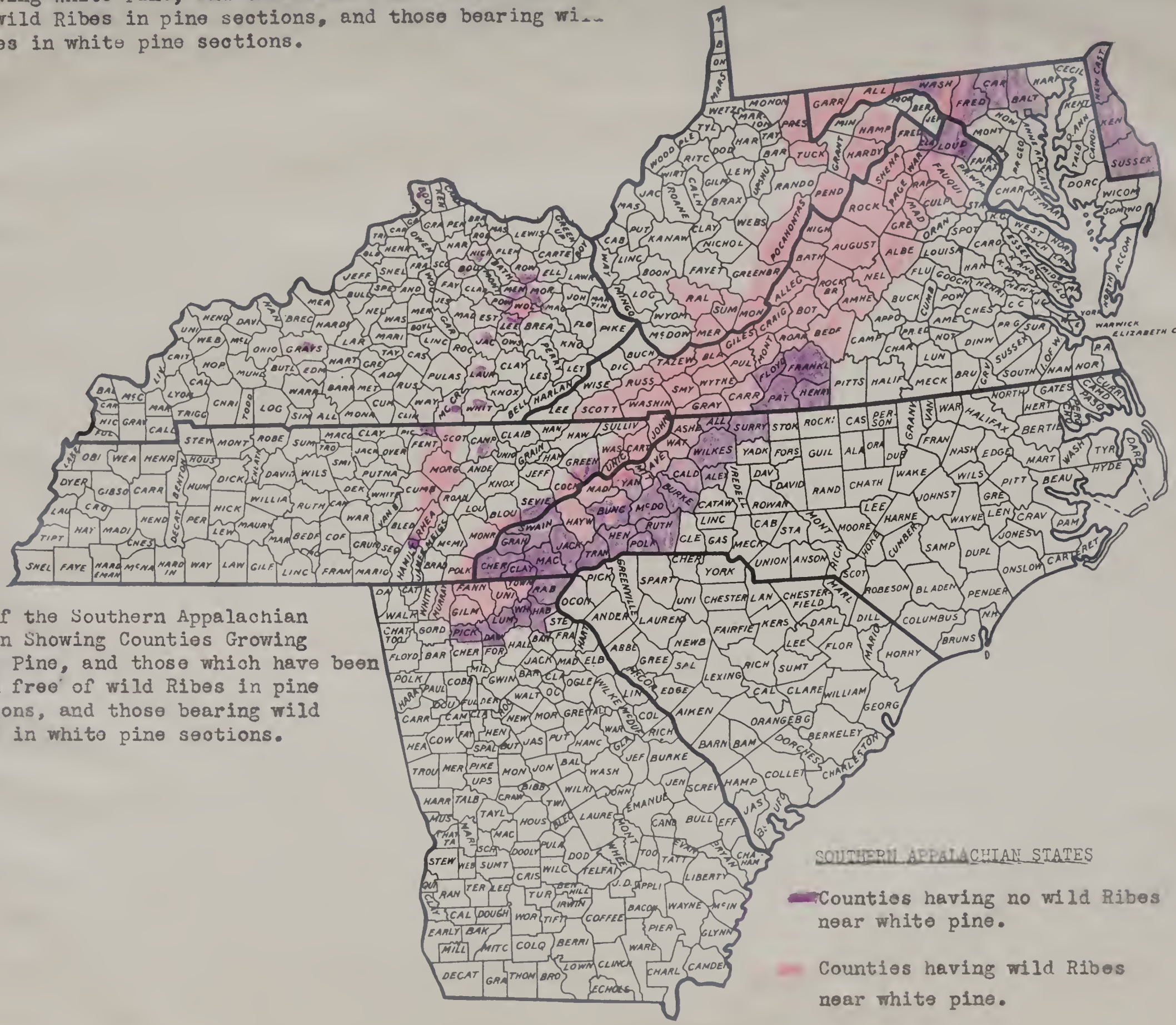
Details by States on each phase of the work will be found in the following pages.

Acknowledgement is here made to Mr. J. C. Ball for writing chapters on checking and Preeradication Surveys, and for preparing graphs, to Mr. H. C. Cooper for his attention to financial and other administrative matters throughout the year, and to the members of the office who supplied the data and prepared and checked and ran off the data. Without the field force nothing could be accomplished. This report is therefore an acknowledgement and a tribute to their excellent work.

Roy C. Pierce

June 4, 1940

Map of the Southern Appalachian Region Showing Counties Growing White Pine, and those which have been found free of wild Ribes in pine sections, and those bearing wild ribes in white pine sections.



OMNIBUS TABLES

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SUMMARY OF 1939 RIBES ERADICATION

STATE	Initial Eradication Work			
	Acreage Worked	No. Ribes Destroyed		No. 8 hour man-days
		Wild	Cultivated	
Delaware	2,946	3	1,362	88
Georgia	93,120	419,024	-	2,574
Kentucky	2,948	-		(1)
Maryland	974	95,767	2,247	550
North Carolina	354	48,069	86	895
Tennessee	116,191	648,915	28,970	9,204
Virginia	53,386	400,845	3,339	4,413
West Virginia	89,213	877,229	2,304	4,864
Totals	359,132	2489,852	38,308	22,588

STATE	Reeradication Work			
	Acreage Worked	No. Ribes Destroyed		No. 8 hour-man days
		Wild	Cultivated	
Delaware				
Georgia				
Kentucky	780	1	7	(1)
Maryland	7,069	90,979	215	1,588
North Carolina	86,168	181,836	2,129	4,337
Tennessee	15,308	9,281	60,073	1,057
Virginia	15,008	289,362	191	4,288
West Virginia	7,041	68,567	-	360
Totals	131,974	640,076	62,615	11,630

STATE	Totals				Percent Initial Eradication Worked
	Acreage Worked	No. Ribes Destroyed		No. 8 hour man-days	
		Wild	Culti.		
Delaware	2,946	3	1,362	88	71.5
Georgia	93,120	419,024	-	2,574	12.3
Kentucky	3,728	1	7	(1)	4.4
Maryland	8,043	186,746	2,462	2,138	0.46
North Carolina	86,522	229,955	2,215	5,232	0.01
Tennessee	131,499	658,196	89,043	10,261	18.5
Virginia	68,394	690,207	3,[illegible]	8,701	8[illegible]0
West Virginia	96,854	945,796	2,[illegible]	5,224	13.21
Totals	491,106	3,129,928	100,923	34,218	6.4

(1) Work by Agent charged to supervision

Table I (continued)
SUMMARY OF 1939 RIBES ERADICATION

STATE	Ribes Per Acre		Man-Days Per Acre	
	Initial Eradication	Reeradication	Initial Eradication	Reeradication
Delaware	0.46	-	.03	
Georgia	4.5	-	.03	
Kentucky	-	.01	(1)	(1)
Maryland	101.	13.87	.57	.22
North Carolina	136.	2.10	2.53	.05
Tennessee	5.83	4.53	.80	.06
Virginia	7.56	19.26	.08	.29
West Virginia	9.83	8.98	.05	.05
Totals	7.06	5.32	0.06	.09

(1) Work carried on by agent Ball charged to supervision

STATE	Number of Camps				(3) Number of Employees					
	CCC	WPA	Regular	Total	Laborers				All Supervision	Total Employees
					CCC	WPA	Reg.	Total		
Delaware						3		3	1	4
Georgia						44		44	2	46
Kentucky									1	1
Maryland					38	53		91	3	94
North Carolina					14	178	1	193	10	203
Tennessee		1 (2)			20	165		185	5	190
Virginia					56	119	20	195	6	201
West Virginia					25	76	-	101	5	106
Totals					153	638	21	812	33	845

(2) A small camp was operated by WPA men in Greene County
(3) The maximum number of persons on the payroll at the peak of the season

TABLE II
SUMMARY OF 1939 RIBES ERADICATION BY PROGRAMS
(Including all work - Initial and Reeradication)

STATE	Total Acreage Worked (Initial and Reeradication)	Regular and Cooperative			
		Acreage Worked	No. Ribes Destroyed Wild	Culti.	No. 8 hour man-days
Delaware	2,946	7	1	41	(2)
D. C.	None				
Georgia	93,120				
Kentucky	3,728	3,7288	1-	7	(1)
Maryland	8,043		481	130	
North Carolina	86,522	188	491	99	17
Tennessee	131,499				
Virginia	68,394	43	1,206		41
West Virginia	96,854	-	-	-	-
Totals	491,106	3,966	2,180	277	58

(1) Work by Agent
(2) Work by owners

STATE	WPA and ERA			
	Acreage Worked	No. of Ribes Destroyed Wild	Cultivated	No. 8 Hour man-days
Delaware	2,939	2	1,321	88
District of Columbia	-	-	-	-
Georgia	93,120	419,024	-	2,574
Kentucky	-	-	-	-
Maryland	5,963	162,875	2,106	1,601
North Carolina	85,980	181,395	2,030	4,320
Tennessee	110,381	658,196	89,043	9,536
Virginia	40,739	660,270	2,830	8,348
West Virginia	77,701	857,990	1,529	3,727
Totals	416,823	2939,752	98,859	30,194

STATE	ECW and SCS			
	Acreage Worked	No. of Ribes Destroyed Wild	Cultivated	No. 8 hour man-days
Delaware				
D. C.	NONE			
Georgia				
Kentucky				
Maryland	2,080	23,390	226	537
North Carolina	354	43,069	86	895
Tennessee	21,118	0	0	725
Virginia	27,612	28,731	700	312
West Virginia	19,153	87,806	775	1,497
Totals	70,317	137,996	1,787	3,966

STATE	TOTALS ALL PROGRAMS			
	Acreage Worked	No. of Ribes Destroyed Wild	Cultivated	No. 8 hour man-days
Delaware	2,946	3	1,362	88
Georgia	93,120	419,024	0	2,574
Kentucky	3,728	1	7	(1)
Maryland	8,043	186,746	2,462	2,138
North Carolina	86,522	229,955	2,215	5,232
Tennessee	131,499	658,196	89,043	10,261
Virginia	68,394	690,207	3,530	8,704
West Virginia	96,854	945,796	2,304	5,224
Totals	491,106	3129,928	100,923	34,218

Table 3
SUMMARY OF ALL OTHER CONTROL WORK FOR 1939

STATES	Cultivated Black Currant Eradication	Nursery Sanitation					
		Number Nurseries Worked	Number White Pine In Nurseries	Number Acres Worked	Number Ribes Destroyed		No. 8 hour man-days
					Wild	Cultivated	
Delaware	None	7	50,537	1,500		75	12
Georgia	in '39	-	-	-	-	-	-
Kentucky		1	60,400	200			(1)
Maryland		5	9,617	3,005		1	(1)
North Carolina		3	125	468	1,449	3	74
Tennessee		-	-	-	-	-	-
Virginia		10	301,492	2,020	48	26	9
West Virginia		1	30,000	643	6,258	9	34
Totals		27	452,171	7,836	7,755	114	129

(1) Worked by agent

States	Preeradication Survey	
	Number Acres Mapped White Pine and Protective Zones	Number 8 hour man-days
Delaware	2,946	130
Georgia	93,067	2,752
Kentucky	2,948	(1)
Maryland	706	53
North Carolina	94,749	10,672
Tennessee	95,763	4,123
Virginia	67,127	1,252
West Virginia	137,994	2,466
Totals	495,320	21,448

STATES	Treatment Infected Trees				
	Number Trees Examined	Number Trees Treated	Number Trees Removed	No. Cankers Rmv'd	Number 8 hour man-days
Delaware					
Georgia					
Kentucky					
Maryland	56,096	1,377	155	3,208	304
North Carolina					
Tennessee					
Virginia	410,658	13,031	2,549	67,350	1,493
West Virginia					
Totals	466,754	14,408	2,704	70,558	1,797

States	CHECKING					
	Advance		Post		Regular	
	Acreage Worked	No. 8 hour m-Days	Acreage Worked	No. 8 hour m-days	Acreage Worked	No. 8 hour m-days
Georgia					305.00	44.0
Maryland	71.3	45	75.8	36	175.70	49.5
North Carolina	81.1	30			211.90	160.0
Tennessee					527.00	208.0
Virginia			126.0	49	43.00	15.0
West Virginia	672.6	159			1115.37	187.0
Totals	825.0	234	201.8	85	2377.97	663.5

TABLE 4
SUMMARY OF EXPENDITURES FOR 1939

States	Total		
	Federal	State Including all Cooperative Funds	Grand Total
Delaware	$ 2,025.47	278.15	2,303.62
Georgia	17,238.19	1,024.65	18,262.84
Kentucky	82.70 (1)	(1)	82.70
Maryland	12,608.87	2,346.95	14,955.82
N. Carolina	50,469.28	5,112.38	55,581.66
Tennessee	37,440.65	9,678.70	47,119.35
Virginia	52,425.17	1,372.62	53,797.79
W. Virginia	33,407.54	2,527.74	35,935.28
Totals	205,697.87	22,341.19	228,039.06

States	Recapitulation By Program (Federal Only)				
	Regular and Coop.	Emergency Program W.P.A. & E.R.A.	E.C.W. & S.C.S.	N.Y.A.	Total
Delaware	119.76	1,905.71			1,905.71
Georgia	60.00	17,127.79		50.40	17,178.19
Kentucky	82.70				
Maryland	182.29	11,755.33	671.25		12,426.58
N. Carolina	242.43	47,142.55	2,338.46	745.84	50,226.85
Tennessee	562.96	33,473.94	3,357.25	43.50	36,877.69
Virginia	8,003.43	42,780.54	1,301.26	339.94	44,421.74
W. Virginia	105.60	28,903.28	4,398.66		33,301.94
Totals	9,359.17	183,089.14	12,066.88	1,182.68	196,338.70

States	Recapitulation By Activities (Federal and State)					
	Supt. Incl. State and Dist. Leaders	Ribes Eradication	Nursery Sanitation	Canker Elimination	Pre-eradication Survey	All Other Field Data, and Misc. Checking)
Dela.	200.19	704.92	56.36		579.50	762.65
Ga.	5,396.02	5,464.64			5,806.72	1,595.46
Ky.	82.70	(1)			(1)	
Md.	6,691.22	5,705.00		855.06	148.72	1,555.82
N.C.	17,860.06	11,419.42	138.14		24,506.67	1,657.37
Tenn.	8,323.03	28,313.12			10,048.89	434.31
Va.	28,227.59	16,744.88	22.80	2,658.47	2,239.39	3,904.66
W.Va.	10,315.63	15,866.23	226.60		9,080.55	446.27
Totals	77,096.44	84,218.21	443.90	3,513.53	52,410.44	10,356.54

(1) Only Ball's expenses charged since his salary was paid from State

CCC - ECW) COSTS WHICH ENTERED INTO FIGURES USED IN
ANNUAL STATISTICAL TABLE 4.
FOR 1939.

State	Salary or Wages			
	Forester	Leader (Foreman)	Enrollees	Truck Costs
Maryland	-	$45 to $75 per mo.	$1.00 per d. (1) of 6 or 7 hours.	Estimated at 25 ct per man hour. (1)
North Carolina	$8.33 per d.	-----	$1.50 for 6 hr.day	Actual costs of maintenance and operation
Tennessee	---	(47 cts.per hr.) $2.82 for 6 hr.day	(25 cts.per hr.) $1.50 for 6 hr.day	Not considered Men walked part of time.
Virginia	$5.40 per d.		$1.50 per day for 6 or 7 hr. day	None
West Virginia	$155 per mo.		$1.50 per 6 hr.day	Actual cost of maintenance and operation.

(1) Figures decided upon by Dist. Forester Buckingham of Maryland in consultation with Mr. Yost.

Note: Trucks costs considered for 3 out of 5 States
Supervision considered for all States
or Foreman.

Above data was provided by State Leaders - January-February, 1940.

CCC - ECW) COSTS WHICH ENTERED INTO FIGURES USED IN
ANNUAL STATISTICAL TABLE 4.
FOR 1939.

State	Salary or Wages			
	Forester	Leader (Foreman)	Enrollees	Truck Costs
Maryland	-	$45 to $75 per mo.	$1.00 per d. (1) of 6 or 7 hours.	Estimated at 25 cts (1 per man hour.
North Carolina	$8.33 per d.	-----	$1.50 for 6 hr.day	Actual costs of maintenance and operation
Tennessee	---	(47 cts.per hr.) $2.82 for 6 hr.day	(25 cts.per hr.) $1.50 for 6 hr.day	Not considered Men walked part of time.
Virginia	$5.40 per d.		$1.50 per day for 6 or 7 hr. day	None
West Virginia	$155 per mo.		$1.50 per 6 hr.day	Actual cost of maintenance and operation.

(1) Figures decided upon by Dist. Forester Buckingham of Maryland in consultation with Mr. Yoest.

Note: Trucks costs considered for 3 out of 5 States
Supervision considered for all States
or Foreman.

Above data was provided by State Leaders - January-February, 1940.

TABLE IA

SUMMARY OF ALL RIBES ERADICATION 1913-1939 (Inclusive)

States	Total Acreage White Pine	Acreage White Pine Worth Protecting	Acreage Control Areas (White Pine and Protective Zones	Acreage Reported Initially Worked
Delaware	150	150	4,123	4,022
District of Columbia	25	25	1,875	1,875 (1)
Georgia	452,025	400,000	758,800	668,186
Kentucky	62,417	62,417	67,178	67,178
Maryland	83,428	77,608	207,964	172,453
North Carolina	1,179,903	1,179,903	2,484,834	2,484,834
South Carolina	15,137	15,137	29,635	29,635
Tennessee	509,895	434,290	675,000	629,111
Virginia	256,779	256,769	668,629	603,340
West Virginia	266,000	246,000	675,000	555,594
Totals	2,825,759	2,672,299	5,573,038	5,216,228

(1) Worked by Mr. Pierce and Yost 1938 and previous years but not reported.

States	Initial Eradication Work				Reeradication Work			
	Net Acr'g Worked in Control Area	Number Ribes Destroyed Wild	Number Ribes Destroyed Culti.	No. 8 hour man-days	Acreage Worked	No. Ribes Destroyed Wild	No. Ribes Destroyed Cultivated	No.8 hour man-days
Del.	4,022	3	2,000	131				
D. C.	1,875							
Ga.	668,186	4965,867	215,179	20,804	12,430	310,485	659	2,762
Ky.	67,178	2,095	1,830	837	780	1	7	(1)
Md.	172,453	2823,927	5,307(2)	11,517	44,997	552,398	2,332(2)	6,270
N. C.	2484,834(3)	829,094	584,076	30,907	716,274	242,803	77,584	11,380
S. C.	29,635	0	7,129	1,[illegible]	1,045	0	358	182
Tenn.	629,111	5094,870	185,508	36,051	19,040	158,403	60,073	1,870
Va.	603,340	4790,751	53,944	65,605	52,564	1466,042	256	18,100
W. Va.	555,594	3151,785	13,832	29,482	51,888	224,647	8	2,523
Totals	5216,228	21657,092	1068,805	186,579	899,018	2954,779	141,277	43,087

(3) Net Acreage initially worked in N.C. too high but accurate figures not available

(2) In Maryland 14 bushes and five days subtracted from initial work. Erroneously placed in these columns last year.

	Totals				Percent Initial Eradication Worked	Per Acre		Man-Days	
	Net Acr'g Worked in Control Area	No. Ribes Destroyed Wild	No. Ribes Destroyed Culti.	Number 8 hour man-days		Initial Eradication	Reeradication	Initial Erad.	Reeradication
Del.	4,022	3	2000	131	97.5	0.5	0	0.03	0
D. C.	1,875				100	0	0	0	0
Ga.	680,616	5 276,052	215338	23,566	88	6.8	25	.042	.022
Ky.	67,958	2,096	1337	837	100	0.06	0.01	0.01	(1)
Md.	217,450	3,375,325	7639	17,787	83	.16	12.	0.067	0.14
N. C.	3,201,108	1,071,897	661660	42,287	100	8.4	.45	.012	.016
S. C.	30,680	0	7487	1,427	100	0.24	0.34	0.04	0.16
Tenn.	648,151	5,253,273	245581	37,921	97.0	8.3	11.47	.057	.098
Va.	655,904	6,256,793	54200	73,705	91.6	8.0	27.9	.09	.35
W. Va.	607,482	3,376,432	13840	32,005	82.4	5.69	4.33	.053	.048
Totals	6115,246	24,611,871	1210982	229,666	93.6	4.3	3.3	0.036	0.048

TABLE 2A

SUMMARY OF ALL RIBES ERADICATION BY PROGRAMS 1918-1939 Inclusive

States	Total Acreage Reported Worked (Initial and Reeradication)	Regular and Cooperative: Acreage Worked	Number of Ribes Destroyed: Wild	Number of Ribes Destroyed: Culti.	No. 8 hour man-days
Delaware	4,022	7	1	73 (2)	
Dist.of Columbia(3)	1,875	1,875			(1)
Georgia	680,616				
Kentucky	67,958	4,818	1	7	(1)
Maryland	217,450	2,430	158,710	179	374
North Carolina	3,201,108	53,600	10,693	4,660	290
South Carolina	30,680	3,145	0	12	12
Tennessee	648,151				
Virginia	655,904	10,299	61,450	2	179
West Virginia	607,482	3,970	22,844	0	244
Totals	6,115,246	80,144	253,699	4,933	1,099

(1) Work carried on by agents and charged to supervision

(2) Cultivated bushes were destroyed by owners

States	WPA and E. R. A.: Acreage Worked	No. of Ribes Destroyed: Wild	No. of Ribes Destroyed: Culti.	No. of 8 hour man-days	ECW and SCS: Acreage Worked	No. of Ribes Destroyed: Wild	No. of Ribes Destroyed: Cultivated	No. 8 Hour man-days
Dela.	4,015	2	1,927	131				
D. C.								
Ga.	489,428	5,271,901	194,736	22,782	15,493		235	51
Ky.	1,617							
Md.	76,437	1,595,530	4,693	11,436	11,147	430235	238	2,388
N. C.	2,076,254	987,767	522,273	35,418	166,071	49596	7692	2,628
S. C.	4,050	0	556	596	888			21
Tenn.	481,337	4,975,487	243,523	35,023	44,474	111091	144	1,459
Va.	433,909	3,555,322	32,240	45,692	87,296	1919973	731	22,363
W. Va.	482,955	2,432,542	8,233	21,267	74,512	580015	904	8,084
Totals	4,050,002	18,818,551	1008,181	172,345	399,881	3090910	9,944	36,994

(3)Acreage in D. C. not heretofore reported but work done by Mr. Pierce and Mr. Yost prior to 1939.

States	PWA or NRA: Acreage Worked	No. of Ribes Destroyed: Wild	No. of Ribes Destroyed: Culti.	No. 8 hour man-days	Total Emergency Programs (WPA, PWA ECW & : Acreage Worked	No. of Ribes Destroyed: Wild	No. of Ribes Destroyed: Culti.	No. 8 hour man-days
Dela.					4,015	2	1,927	131
D.C.								
Ga.	175,395	4,151	20,867	733	680,616	5,276,052	215,838	23,566
Ky.	61,523	2,095	1,830	837	63,140	2,095	1,830	837
Md.	127,436	1190850	2,529	3,589	215,020	3,216,615	7,460	17,413
N.C.	905,183	23841	127,035	3,951	3147,508	1,061,204	657,000	41,997
S.C.	22,597	0	6,919	798	27,535	0	7,475	1,415
Tenn.	122,340	166,695	1,914	1,439	648.157	5,253,273	245,582	37,921
Va.	124,400	720,048	21,227	5,471	645,605	6,195,343	54,198	73,526
W. Va.	46,045	341,031	4,703	2,410	603,512	3,353,588	13,840	31,761
Totals	1,585,219	2448,711	187,024	19,228	6035,102	24,358,172	1205,149	228,567

TABLE 3A

SUMMARY OF ALL OTHER CONTROL WORK, 1918-1939 (Inclusive)

State	Cultivated Black Currant Eradication			
	Number Inspections Made	Number Locations Found	Number Black Currants Destroyed	No. 8-hour man-days
Delaware	(2)			
D. of C.	-	-	-	-
Georgia	19	19	1,126	20
Kentucky				
Maryland	25	25	2,211	no data
N. Carolina	2	2	3	0.25
Tennessee	0			
Virginia	24	24	12	0.25
W. Virginia	1	1	-	0.5
Totals	71	71	3,352	21.0

State	Nursery Sanitation							
	Number of Nurseries		No. Acres Worked			No. Ribes Destroyed		No. 8 hr. man-days
	Sanitation Zone Maintained	Sanitation Zone Abandoned	Nurs. Maintaining Zones	Nurs. which Abandoned Zones	Total Acreage	Wild	Cult.	
Delaware	7	2	2,000	500	2,500	0	88	(1)
D. of C.	0	-	-	-	-	-	-	-
Georgia	0	1		179	179	-	8	1
Kentucky	1	-	200	-	200		24	(1)
Maryland	13	-	4,207	-	4,207	12,314	169	(1)
N. Carolina	21	-	5,107	-	5,107	1,536	747	194
Tennessee	3	-	1,202	-	1,202	-	14	12
Virginia	10	-	2,020	-	2,020	48	26	9
W. Virginia	2	-	768	-	768	29,725	614	659
Totals	57	3	15,504	679	16,183	43,623	1,690	875

State	Preeradication Survey		Treatment Infected White Pine				
	No. Acres Mapped W. pine and Prot. Zones	Number 8 hour man-days	Number Trees Examined	Treated	Removed	No. Cankers Removed	No. 8-hour man-days
Delaware	4,022	410	None				
D. of C.	1,875	(1) a	"				
Georgia	840,012	7,[illegible]17	"				
Kentucky	67,178	(1)	"				
Maryland	207,964	1,608	139,354	5,033	258	14,725	927
N. Carolina	2,346,016	23,217	None				
Tennessee	768,192	15,075	"				
Virginia	676,501	10,922	449,444	19,776	3,147	110,075	2,421
W. Virginia	663,664	15,505	None				
Totals	5,605,059	73,878	588,798	24,809	3,405	124,800	3,348

(1) Work by agent-hence charged to supervision
(2) In Delaware - 97 R. nigrum were destroyed at 22 locations, in last 2 y
but these are included in figures under Initial Ribes Eradication

TABLE 4 A
SUMMARY OF ALL EXPENDITURES, 1918-'38 Incl.

State	Total Federal	State (Including all Coop. funds)	Grand Total
Delaware	3,551.25	444.35	3,995.60
Dist. of Columbia	39.96	0	39.96
Georgia	93,561.15	15,101.34	108,662.49
Kentucky	7,810.11	290.00	8,100.11
Maryland	97,736.96	9,315.90	107,052.86
North Carolina	221,527.66	33,070.27	254,597.93
South Carolina	7,811.40	610.00	8,421.40
Tennessee	149,020.16	26,705.40	175,725.56
Virginia	300,124.49	7,093.91	307,218.40
West Virginia	209,985.68	10,956.85	220,942.53
Totals	1,091,168.82	103,588.02	1,194,756.84

State	Recapitulation By Programs (Federal Only) Reg. & Coop.	WPA, CWA NYA & ERA	ECW SCS	FWA	TOTAL Emergency Program (NYA-WPA-ECW)
Delaware	206.52	3,344.73	0	0	3,344.73
Dist. of Columbia	39.96	0	0	0	0
Georgia	161.27	85,774.69	281.66	7,343.53	93,399.88
Kentucky	1,570.33	0	0	6,239.78	6,239.78
Maryland	7,932.62	64,969.18	2,669.25	22,165.91	89,804.34
North Carolina	3,600.37	182,635.38	7,984.81	27,307.10	217,927.29
South Carolina	80.00	1,876.91	43.04	5,811.45	7,731.40
Tennessee	3,066.64	127,864.28	5,218.12	12,871.12	145,953.52
Virginia	32,894.22	182,199.08	49,447.70	35,583.49	267,230.27
West Virginia	6,209.36	166,508.88	19,401.94	17,865.50	203,776.32
Totals	55,761.29	815,173.13	85,046.52	135,187.88	1,035,407.53

TABLE 4A

SUMMARY OF ALL EXPENDITURES, 1918-1939 (Inclusive)

State	RECAPITULATION SUPERVISION (Incl. State & Dist. Leaders	Ribes Eradication	C. B. C. Eradication
Delaware	414.22	999.84	0
D. of C.	39.96	0	0
Georgia	24,768.81	50,379.65	65.00
Kentucky	2,929.96	4,345.24	0
Maryland	42,403.49	51,412.04	0
N. Carolina	63,535.95	110,429.03	1.00
S. Carolina	666.24	7,450.16	0
Tennessee	40,407.47	88,636.59	0
Virginia	110,769.47	150,178.88	1.00
W. Virginia	51,151.29	104,037.42	2.00
Totals	337,086.87	567,868.83	69.00

State	RECAPITULATION BY ACTIVITIES (FEDERAL AND STATE) Nursery Sanitation	Canker Elimination	Pre-eradication Survey	All Other (Checking, Field Data & Misc.
Delaware	56.36	0	1,697.77	827.41
D. of C.	0	0	0	0
Georgia	3.20	0	21,653.50	11,792.33
Kentucky	0	0	(2)	824.91
Maryland	560.22	2,615.72	5,926.85	4,134.54
N. Carolina	475.60	0	54,599.94	25,556.37
S. Carolina	0	0	20.00 (1)	285.00
Tennessee	25.14	0	35,603.27	11,053.09
Virginia	1,010.69	4,541.07	33,020.92	7,696.37
W. Virginia	3,337.56	)	61,415.17	999.09
Totals	5,468.77	7,156.79	213,937.42	63,169.11

(1) In 1933 and 1934 Costs and time were included with Ribes Eradications.
(2) In 1934 in Kentucky no expense was charged to pre-eradication survey, but all expenses were charged to supervision on Ribes Eradication

Previously reported totals for 1918-1938 have been corrected before being added to the 1939 data.

TABLE 4B

STATUS OF BLISTER RUST CONTROL

1918 - 1939 (Inclusive)

State	Control Area (Including Border Zones (Acres)	Net Control Area Initially Protected (Acres)	Control Areas Reworked Subsequent to Initial Protection (Acres)	Number 8 hour Man-days (Man-Days)	Ribes Destroyed (Wild and Cultivated) (Number)	Remaining Control Area Needing Initial Protection (Acres)	Estimate Prot. Area Now on Maintenance Basis (Acres)
Delaware	4,123	4,022	0	131	2,003	101	4,022
District of Columbia	1,875	1,875(1)					1,875
Georgia	758,800	668,186	12,430	23,956	5,493,690	90,614	467,730
Kentucky	67,178	67,178	780	837	3,933	0	67,178
Maryland	207,964	172,453	44,997	17,787	3,382,964	35,511 (2)	152,000
North Carolina	2,484,834	2,484,834	716,274	42,287	1,733,557	(3) 0	1,422,578
South Carolina	29,635	29,635	1,045	1,427	7,487	0	29,635
Tennessee	675,000	629,111	19,040	37,921	5,498,854	45,889	500,000
Virginia	668,629	603,340	52,564	73,705	6,310,993	65,289	250,000
West Virginia	675,000	555,594	51,888	32,005	3,390,272	119,406	467,114
Totals	5,573,038	5,216,228	899,018	229,666	25,821,953	356,810	3,362,132

(1) Acreage not claimed in 1938 though surveyed at that time by Mr. Yost

(3) In North Carolina there is an unknown acreage to be protected, although column 2, minus column 3 equals zero, evidently column 3 is too high.

(2) In Maryland much of the area which has not been given initial protection is not worth sufficient to be protected.

STATE WPA PROJECT IN 1939*

Working and State	Acreage Worked	Number of Ribes Destroyed		Number 8 hour m-days	Cost	Per Acre			Acres Per m-days
		Wild	Culti.			Cost	No.of Ribes	No.of m-days	
INITIAL									
N. Carolina	-								
Virginia	3,518	82,958	221	1,560					
Totals	3,518	82,958	221	1,560					
REWORK									
N.Carolina	30,437	30,662	3	1,881					
Virginia	2,946	45,959	191	1,686					
Totals	33,383	76,621	194	3,567					
Includes all Workings									
N.Carolina	30,437	30,662	3	1,881	$23,449.00	0.77	1.01	0.062	16.1
Virginia	6,464	128,917	412	3,246	8,542.49	1.32	20.0	0.50	1.9
Totals	36,901	159,579	415	5,127	31,991.49	0.8	4.3	0.14	7.2

*1939 is the first calendar year for State WPA Project

PERSONNEL

PERSONNEL

The following technical, supervisory and clerical personnel were under appointment in the calendar year 1939. Great credit is due the field personnel for the work accomplished in their respective State and district.

Delaware

Bernard C. Pufahl,	Supervisor	WPA Professional Grade Aug.15, 1938

Georgia

William V. Zimmer,	State Leader	Originally appointed May 2, 1934
Thomas M. Corn	Agent	" " Aug. 22, 1935
		Furloughed

Maryland

Henry E. Yost	State Leader	Originally appointed Sept.13,1933
Ernest R. Porter	Agent	" " May 16, 1934
		Furloughed July 1, 1939

North Carolina

Hillary B. Teague,	State Leader	Originally appointed May 1, 1934
Oscar V. Coulter,	Agent	" " Aug. 10,1936
		Collab.WOC since Feb. 27,1939
Mark M. Ferguson,	Agent	Originally appointed May 12,1936
		Terminated as agent Oct. 12,1939
		Reappointed Collab.WOC " 13,1939
		Salary paid by N. C. and State WPA
Hobart A. Whitman,	Collab.WOC	Originally appointed July 27, 1934
		Terminated as agent Dec. 31, 1937
		Reappointed Collab.WOC Jan. 1, 1938
		Salary paid by N. C. and State WPA

Tennessee

Radford D. Tanksley,	State Leader	Originally appointed Sept.24, 1936
John W. Lane	Agent	" " May 25, 1936
		Furloughed Sept. 12, 1939
		Returned to duty Nov. 1, 1939
Otis E. Skiles	Agent	Originally appointed May 7, 1934
		Furloughed Sept. 26, 1939
		Terminated Dec. 30, 1939
Pete Stegall	Agent	Originally " May 7, 1934
		Terminated " Oct. 13, 1939
John T. Lamb	"	Originally " April 3, 1939
		Terminated " Aug. 31, 1939
		Appointed on State funds Nov.22, 1939
		Appointed Collab.WOC Nov. 22, 1939

PERSONNEL

(continued)

Virginia

Richmond Office

Roy G. Pierce, Pathologist	Originally appointed		July 1, 1908
James C. Ball, Agent	"	"	1933
Harry E. Cooper Principal Clerk	"	"(War Dept.)	Aug.22, 1935
Minnie C. Hudgins, Asst.Clerk-Sten.	"	"	Dec. 21, 1935
Ellen G. Fischer, Jr. Clerk-Sten.	"	"	May 16, 1939
Jewell E. Hudson, Jr. " "	"	"	April 17, 1939

Charlottesville Office

John G. Luce, Jr., State leader	"	"	May 21, 1934
George C. Cramer, Agent	"	"	Feb. 4, 1935
William M. Early, Jr., Agent	"	"	May 21, 1934
	Readj.to Collab.WOC		Dec. 1, 1939
	Appointed on State WPA		Dec. 1, 1939
Ralph L. Miller, Agent	Originally Appointed		April 7, 1939
	Terminated		July 15, 1939
	Appointed on State Funds	"	16, 1939
	Terminated " " "	"	28, 1939

West Virginia

Joseph M. Ashcroft, State leader	Originally appointed		May 12, 1934
George C Hamilton, Agent	"	"	June 18, 1934
	Terminated		Aug. 31, 1939
Kermit McKeever, Agent	Originally appointed		Sept. 5, 1936
	Terminated		Aug. 31, 1939
Ralph W. Welch Agent	Originally "		May 12, 1934
	Readj. to Collab.WOC		Oct. 16, 1939
	Appointed on State funds	"	16, 1939

P E R S O N N E L
(Foremen)
Calendar Year 1939

GEORGIA

County	Name	Grade
Fannin	Coleman Forester	Skilled
Gilmer	John E. Price	Skilled
	Estill M. Monsley	Skilled
Murray	Fields K. McKinnish	Skilled

MARYLAND

Carrott	Harry Murphy	Skilled
	Harry Durst	Skilled

NORTH CAROLINA

Avery	Paul R. Clark	Skilled
Buncombe	James E. Brookshire	Skilled
	August T. Erickson	
Haywood	Carson W. Swanger	Skilled
	Gordon Wyatt	Skilled
	Julius Ledford	Skilled
	Pink T. Messer	Skilled
	William Carrison	Skilled
Burke	George P. Mayhue	Skilled
McDowell	Obie Webb	Skilled
Mitchell	Jeter Grindstaff	Skilled
	Anson C. Wiseman	Skilled
Transylvania	John Heath	Skilled

TENNESSEE

Cumberland	Joe H. Wilson	Skilled
Carter	Rhudy Portner	Skilled
	David C. Kidd	Skilled
	Croy V. Carter	Skilled
	Walter Nave	
Johnson	Charles R. Smith	Skilled

TENNESSEE (Continued)

Morgan	Benny F. Potter	Skilled
	Cecil Hawn	Skilled
Unicoi	James D. Edwards	Skilled
Washington	William L. Kilby	Skilled

VIRGINIA

Augusta	John H. Wise	Skilled
Highland	Cam A. Crummett	Skilled
	Obbie F. Simmons	Skilled
Madison	Douglas D. Withers	Professional
Roanoke	Samuel C. Stump	Skilled
	Thomas B. Tate	Skilled
	Fred W. Gilley	Skilled
Rockingham	Bernie R. Vaughan	Professional
Smyth	Lawrence I. Hamric	Professional

WEST VIRGINIA

Hardy	Ervin See	Skilled
	Sterling D. Stewart	Skilled
	Clarence Foltz	Skilled
Mercer	Thomas J. Lilly	Skilled
	Elmer Gwynne	Skilled
Pendleton	Marlin I. Keister	Skilled
	Richard R. Mitchell	Skilled

SUMMARY OF ACCIDENTS OCCURRING TO OUR

PERSONNEL IN CALENDAR YEAR 1939

State	Name of Injured and Date	Nature of Injury	Statement of Compensable Time	Reported to U. S. Employees Compensation Commission
Tennessee				
	Eston Hardin 3/7/39	Slight injury to left arm	None	Yes
	Arthur D. Newport 1/24/39	Cut on left hand	None	Yes
	Arthur W. Phillips 2/8/39	Eyeball Punctured	From 2/9/39 to 2/18/39 Inc.	"
	Drew Wilson 6/3/39	Blow to back of neck by rock	6/5-6/7	Yes
	Quentin Thurman 6/14/39	Left foot sprained	Four days	Yes
Virginia				
	Lester A. Combs 11/28/39	Bruised or cut eyeball	None	Yes
	Elmer L. Fulk 11/8/39	Eye cut by thorn	"	"
	Elbert L. Dove 9/25/39	Skinned both legs below knees	"	No
	J. C. Ball 7/29/39	Slight injury to nose	"	"
	Lora F. Sigman 6/2/39	Bruised hip	"	"
	Thomas D. Tate 6/2/39	Scratch on shoulder	"	"
	Andrew D. Booth 6/2/39	Ankle slightly twisted	"	"
	Everett T.Motley 6/2/39	Back bruised - neck twisted	"	"
	Oliver J. Witt 6/2/39	Hip bruised - ankle hurt	"	"

SUMMARY OF ACCIDENTS OCCURRING TO OUR

PERSONNEL IN CALENDAR YEAR 1939

State	Name and Date	Nature of Injury	Statement of Compensable Time	Reported to U. S. Employees Compensation Commission
Virginia (Continued)				
	Marshall C. Leftwich 6/2/39	Left leg hurt Scratch on top of head	None	No
	William W. Wright 6/2/39	Hip and side hurt	"	"
West Virginia				
	Taylor Johnson 6/5/39	Scratch on left eyeball	Two days	Yes

Location of B listor Rust Control Work

In the Southern Appalachian States in 1939

by Projects, State, County and Activity

Delaware

	All WPA
Local Control	Kent, New Castle and Sussex Counties
Other Activities	Kent, New Castle and Sussex Counties
Office	New Castle

Georgia

	All WPA
Local Control	Fannin, Gilmer, and Murray Counties
Other Activities	Pickens, Towns, Gilmer, Murray, Fannin, Union and Gordon Counties
Office	State Leader - Lumpkin Agents - Gilmer and Murray Counties

Maryland

	WPA
Local Control	Allegany, Garrett and Washington Counties
Office	Allegany
Other Activities	Allegany, Anne Arundel, Baltimore, Calvert, Carroll, Cecil, Frederick, Garrett, Harford, Howard, Montgomery, Prince George, Queen Anne, Washington Counties

	CCC
Local Control	Allegany and Garrett Counties

North Carolina

	WPA
Local Control	Avery, Buncombe, Haywood, Mitchell and Transylvania
Other Activities	Avery, Buncombe, Haywood, Mitchell and Transylvania
Office	Avery, Buncombe, Haywood and Mitchell

	State WPA
Local Control -	Avery, Mitchell and Watauga.
Other Activities	Avery, Haywood (Supervision), Mitchell and Watauga.
Office	Buncombe, Avery and Mitchell

Location of Blister Rust Control Work

In the Southern Appalachian States in 1939

by Projects, State, County and Activity

(Continued)

North Carolina

CCC

Local Control — Haywood County

Other Activities — Haywood County (Supervision)

Regular Project (Including State and Local Cooperation)

Local Control — none

Other Activities — Avery, Buncombe, Haywood and Mitchell Counties

Office — Buncombe County

N.Y.A.

Office — Avery, Buncombe, Haywood and Mitchell Counties

Tennessee

W. P. A.

Local Control — Campbell, Carter, Greene, Rhea, Scott, Unicoi and Washington Counties.

C. C. C.

Polk County

Other Activities

W. P. A.

Campbell, Carter, Greene, Johnson, Rhea, Scott, Unicoi and Washington Counties

C. C. C.

Polk County

Office

W. P. A.

Knox County

Regular

Knox County

Virginia

W. P. A.

Local Control

Albemarle, Augusta, Bath, Grayson, Highland, Madison, Roanoke, Rockingham, Shenandoah. Smyth and Wythe

Location of Blister Rust Control Work

In the Southern Appalachian States in 1939

by Projects, State, County and Activity

(continued)

Virginia

Local Control — C. C. C.
Madison, Page and Rappahannock Counties

Regular
Albemarle, Augusta, Greene, Madison and Rockbridge Counties

State WPA
Page, Rockingham and Shenandoah Counties

Other Activities
Albemarle, Augusta, Bath, Grayson, Highland, Madison, Roanoke, Rockingham, Shenandoah, Smyth and Wythe Counties

Office Charlottesville, Luray, Danville and Richmond

West Virginia

Local Control
Hampshire, Hardy, Mercer, Pendleton and Raleigh Counties

Other Activities
Hampshire, Hardy, Mercer, Pendleton, Summers and Tucker Counties

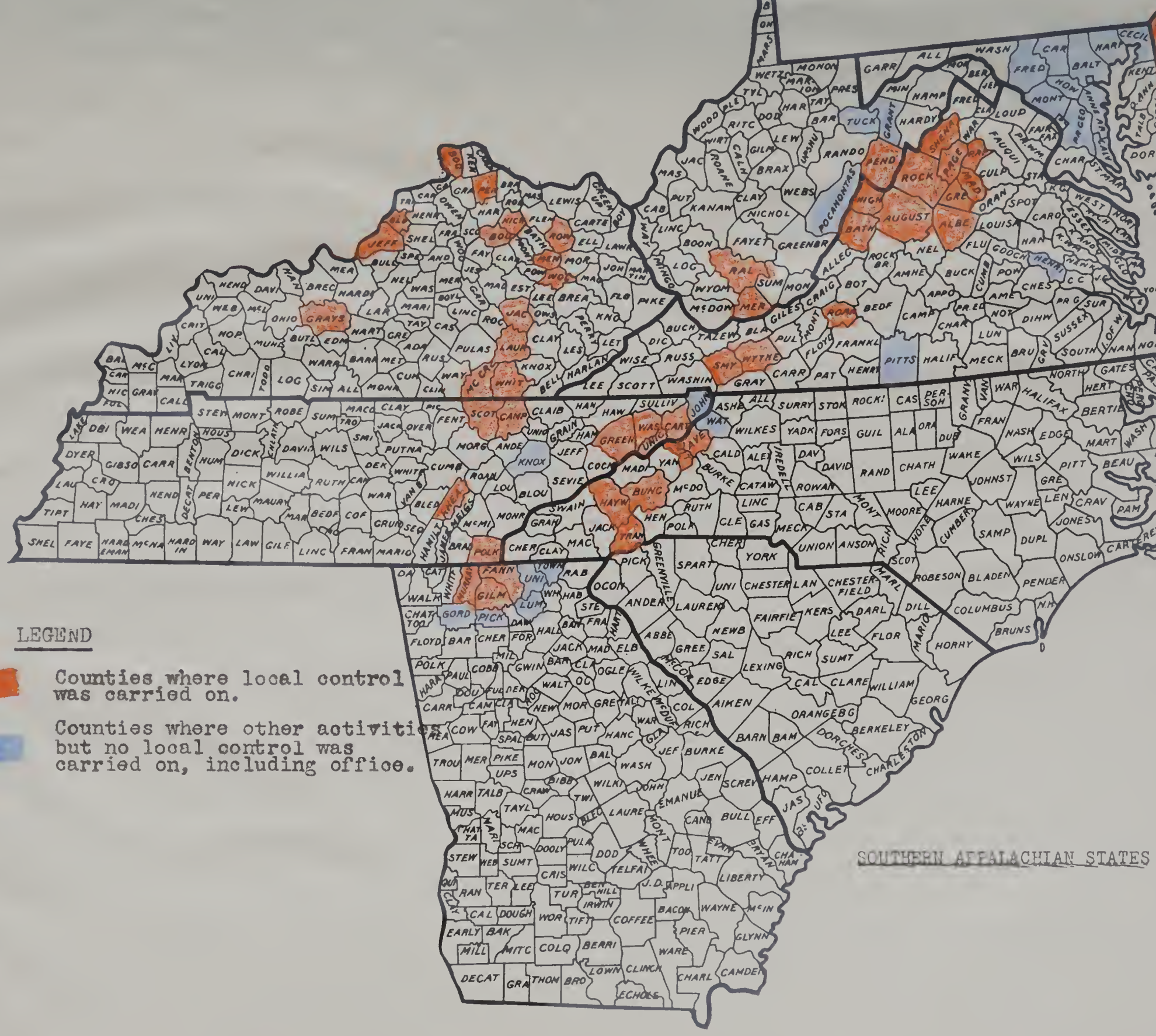
Office Hardy, Raleigh, Grant and Pocahontas Counties

Kentucky

Local Control
Boone, Bourbon, Grayson, Jackson, Jefferson, Laurel, Oldham, Pendleton, McCreary, Menifee, Nicholas and Rowan Counties, Whitney and Wolfe

Other Activities
Same as for Local Control

COUNTIES IN WHICH BLISTER RUST ACTIVITY WAS CARRIED ON IN 1939



EXPENDITURES

EXPENDITURES

Federal

During the Calendar Year 1939, Federal funds expended for blister rust control work amounted to $205,637. This was about $8,459 more than was expended from Federal sources in 1938, but was $30,495, less than was expended from the same source in 1937. Expenditures from Federal WPA dropped from $177,364 in 1938 to $151,097 in 1939, but expenditures from State WPA rose from nothing in 1938 to $31,991 in 1939. Counting both Federal and State WPA funds in 1939, the amount expended was $183,089 or $5,725 more than was expended in 1938.

Expenditures from CCC and SCS rose from $5,841 in 1938 to $12,065 in 1939, while expenditures from Regular funds fell from $13,330 in 1938 to $9,559 in 1939.

State and Private

During the calendar year 1939 $6477 was spent from State Cooperative funds. This amount, plus $12,304 in other tangible contributions, and $3561 in intangible contributions, represents a total of $22,541 in cooperative State contributions for blister rust control in 1939, compared to $32,274 for 1938.

Cash expenditures were as follows:

Georgia	$ 69.65
Maryland	200.00
North Carolina	3557.76
Tennessee	175.50
Virginia	[illegible]
West Virginia	1778.54
Total	[illegible]

Comparison of Expenditures for Southern Appalachian District in Calendar Years 1928 to 1939 Inclusive As Given in Annual Reports for the Region

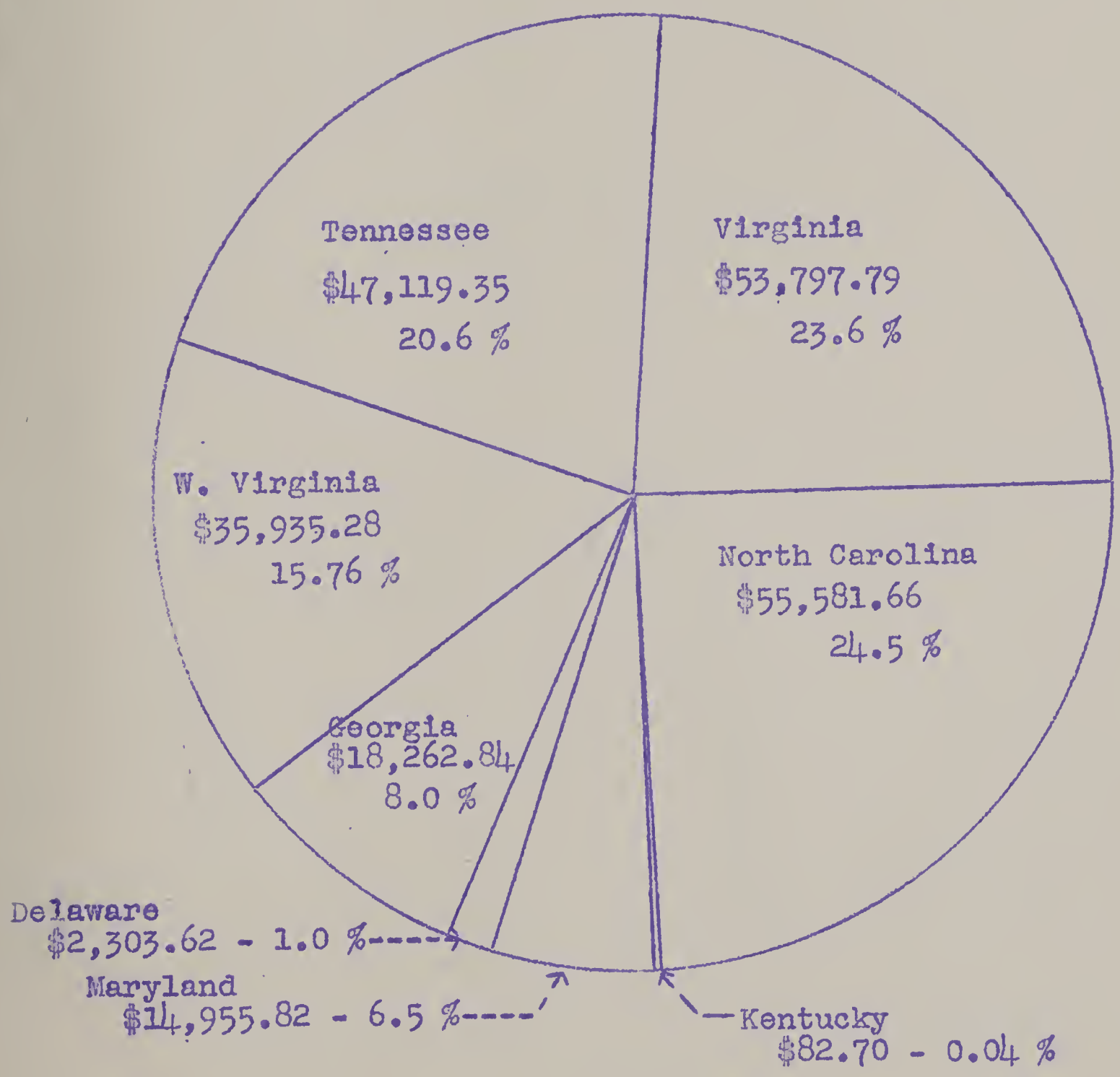
	1928 to 1935 Inclusive	1936	1937	1938	1939
Federal	$263,411.69	190,890.93	263,192.96	197,248.68	205,697.87
State and Coop.Agencies	12,525.60	8,326.81	28,120.90	32,273.52	22,341.19
Combined Fed. and State	275,937.29	199,217.74	264,313.86	229,522.20	228,039.06

	Totals 1928 - 1939	Corrected Cumulative Statement as it appears in Statistical Table 4A 1928 - 1939
Federal	$1,093,442.13	1,091,168.82 *
State and Coop. Agencies	103,588.02	103,588.02
Combined Federal and State	1,197,030.15	1,194,756.84

*The corrected cumulative total of $1,091,168.82 of Federal Funds is $2273.31 less than the sum of the amounts shown annually, due to errors in WPA expenditures in past years, which were corrected at the end of 1939.

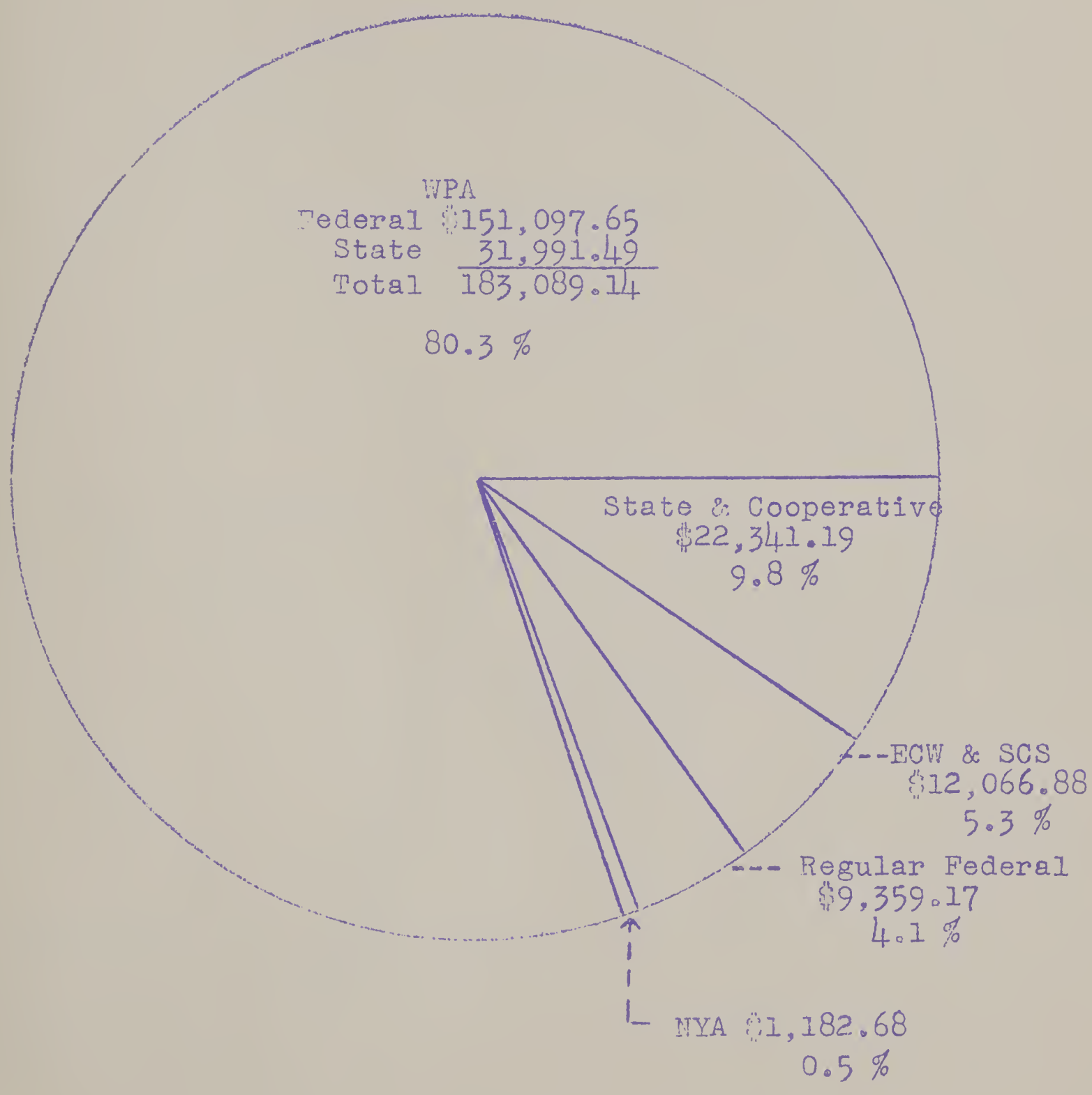
GRAPH SHOWING TOTAL EXPENDITURES, BY STATES, FOR BLISTER RUST CONTROL IN THE SOUTHERN APPALACHIAN STATES FOR 1939

(Total Expenditure - $228,039.06)



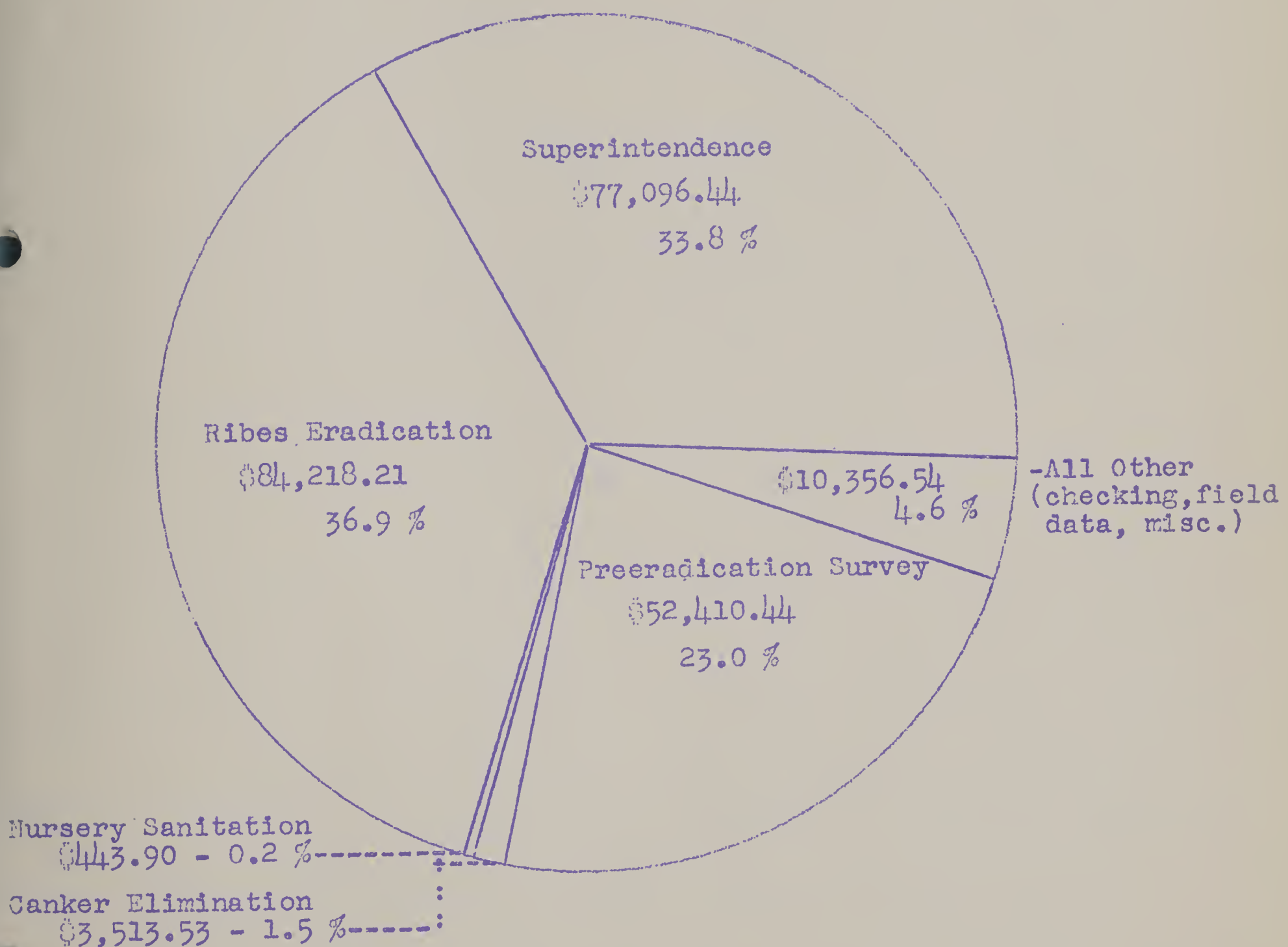
GRAPH SHOWING EXPENDITURES BY PROGRAMS FOR BLISTER RUST CONTROL IN THE SOUTHERN APPALACHIAN STATES FOR 1939.

(Total Expenditure in 1939 - $228,039.06)



GRAPH SHOWING EXPENDITURES, BY ACTIVITIES, FOR BLISTER RUST CONTROL IN THE SOUTHERN APPALACHIAN STATES FOR THE YEAR OF 1939

(Toatl Expenditure - $228,039.06)



BLISTER RUST CONTROL EXPENDITURES IN THE

SOUTHERN APPALACHIAN STATES

In Fiscal Year 1939 and in Calendar Year 1939

On Federal and State WPA Projects, Including Administrative Funds

S T A T E	Appropriation 701082 for Whole Fiscal Year 1939	Appropriation 701082 for Period Jan. 1 to June 30, 1939	Appropriation 201087 July 1, to December 31, 1939
Delaware	$ 2,426.10	$ 987.08	$ 918.63
Georgia	19,636.11	10107.21	7,020.56
Maryland	15,099.02	3617.05	3,138.28
North Carolina	24,013.09	13621.50	10,072.05
Tennessee	38,552.97	22305.27	10,668.67
Virginia	35,219.06	17978.54 (1)	9,179.78 (2)
West Virginia	40,047.21	19523.11	9,380.17
Totals	$174,993.56	$93639.76	$50,573.16

S T A T E	Total Expenditures Federal WPA Calendar Year 1939	Total Federal WPA Expend. Calendar Year 1939	Administrative Expend. Dist. office Richmond, Va.	Grand Total WPA Fed. & State Cal. Year 1939
Delaware	$ 1,905.71	0	0	$ 1,905.71
Georgia	17,127.77(3)	0	0	17,127.79
Maryland	11,755.33	0	0	11,755.33
North Carolina	23,693.55	23,449.00	0	47,142.55
Tennessee	33,473.94	0	0	33,473.94
Virginia	27,158.32	8,542.49	7,079.73	42,780.54
West Virginia	28,903.28	0	0	28,903.28
Totals	$144,017.98	$31,991.49	7,079.73	$183,089.14

*Subject to refunds

(1) $1681.75 was expended in Richmond for clerical assistance

(2) $1001.28 " " " " "

(3) Reported 17127.79 on WPA to account for a 2¢ error in 1938

Total Expenditures in Richmond were as follows:

Approp.	701009	- $4,706.79	Approp.	701082	- $1,681.75
"	201083	- 2,372.94	"	201087	- 1,001.23
Adm.	Total	7,079.73	Tot. Clerical Adm.		2,683.03
			GRAND TOTAL		$9,762.76

SUMMARY OF EXPENDITURES FROM FEDERAL, STATE, WPA, ERA AND NYA APPROPRIATIONS

From July 1, 1935 through December 31, 1939

(Federal WPA)

S T A T E	Appropriation 001089 Fiscal Year 1936 and 1937	Appropriation 201085 Fiscal Year 1937	Appropriation 501082 Fiscal Year 1938	Appropriation 701082 subject to regunds Fiscal Year 1939
Delaware				2,426.10
Georgia	20,272.95	16,764.23	21,995.94	19,636.11
Maryland	21,384.76	9,821.75	15,525.37	15,099.02
North Carolina	33,956.59	55,883.26	33,957.01	24,013.09
South Carolina	1,876.91			
Tennessee	15,919.97	18,077.52	44,534.82	38,552.97
Virginia	33,296.28	38,991.51	44,532.86	35,219.06
West Virginia	23,405.24	42,403.11	51,099.15	40,047.21
Totals	150,112.70	181,941.38	211,643.15	174.993.56

S T A T E	Total Federal W. P. A. through Fiscal Year 1939	201087 as used in Annual Report 1939	Federal - Total W. P. A. through December 31, 1939
Delaware	2,426.10	918.63	3,344.73
Georgia	78,667.23	7,020.56	85,687.79
Maryland	61,830.90	3,138.28	64,964.18
North Carolina	147,809.95	10,072.05	157,882.00
South Carolina	1,376.91	-	1,876.91
Tennessee	117,085.28	10,668.67	127,753.95
Virginia	152,039.71	9,179.78	161,219.49
West Virginia	156,954.71	9,380.17	166,334.88
Totals	718,690.79	50,378.14	769.068.93

SUMMARY OF EXPENDITURES FROM FEDERAL APPROPRIATION
From July 1, 1935 through December 31, 1939
(State W. P. A. - E. R. A. and N. Y. A.)

STATE	State W.P.A. Calendar Year 1939	Combined Federal and State W.P.A. through 1939	E. R. A.	N. Y. A. 1937
Delaware	-	3,344.73	-	-
Georgia	-	85,687.79	-	-
Maryland	-	64,969.18	-	-
North Carolina	23,449.00	181,331.00	-	76.64
South Carolina	-	1,876.91	-	-
Tennessee	-	127,753.95	-	-
Virginia	8,542.49	169,761.98	-	-
West Virginia	-	166,334.88	174.00	-
TOTALS	31,991.49	801,060.42	174.00	76.64

STATE	N. Y. A. 1938	N. Y. A. 1939	Total N.Y.A. 1938 and 1939	Total State W. P. A. E. R. A. and N. Y. A. (1)	Remarks
Delaware	-	-	-	$ 3,344.73	
Georgia	36.50	50.40	86.90	85,774.69	
Maryland	-	-	-	64,969.18	
North Carolina	485.98	745.84	1,306.46	182,637.46	error in Stat. Table $2.08 reported
South Carolina	-	-	-	1,876.91	$182,635.38
Tennessee	63.83	46.50	110.33	127,864.28	
Virginia	124.75	339.94	464.69	170,226.67	plus Richmond office Adm. funds $11,972.41
West Virginia	-	-	-	166,508.88	equals $182,199.08
TOTALS	711.06	1,182.68	1,968.38	803,202.80	

(1) The figures in this column agree with those on Table 4A Sheet 1, with the exception of North Carolina and Virginia (See remarks last column)

ADMINISTRATIVE FUNDS W. P. A.

	F. Y. 1938 Approp. 501009	F. Y. 1939 Approp. 701089 and 701009	Total F. Y. 1939	Approp. 201088
Richmond	2799.92	6799.55	9599.47	$2372.94

Total all WPA through 6/30/39 $728,290.26



District of Columbia. Native white pines in Zoological Park at Washington, D. C. protected from the blister rust through the absence of native Ribes.

Maryland Roll 53. Photo No. 14.

by H. E. Yost

FIELD STUDIES

FIELD STUDIES

Maryland

One Ribes regeneration study plot was laid out by Mr. J. C. Ball, on Area #1 Grantsville Quadrangle. This plot on which Ribes were originally comparatively few, was placed under native white pine, approximately 50 years of age. Since the original working, the stand was thinned and it was found that a large number of Ribes seedlings appeared. It is planned to rework this area next spring and probably the Ribes on the plot will be destroyed before July 1 or at the time of formation of Telia.

Two pine infection study plots were begun in 1938 and are described below. The purpose of these plots is to determine the rate of new infection per year and the mortality of trees per year under certain conditions such as size and age of the pine and the density of species of Ribes.

Deep Creek Plots

Location

One plot was established near the west bank of Deep Creek, approximately five chains southwest of the breast of Deep Creek Lake. Twelve 1/4 acre plots were laid out and marked as follows: Four lines running 104' apart were established running 45° west. These lines were marked A, B, C and D. From the beginning point of line A, a line was run south 45° west connecting lines B, C, D and Marked O. Parallel lines were then established northwest of this line 104' apart and marked 1, 2, 3, 4. The first stake established was marked A/O. and referred to that plot in the northeast corner of the area. B/O would refer to the next plot to the southwest and

1/0 would refer to the next plot to the northwest. All corners were marked with stakes and numbered as described above. This area was located on a westward exposure at an elevation of approximately 2400'.

Ground Cover and Soil.

The white pine trees were practically all between three feet and fifteen feet in height, growing with hardwoods, brush, brumbles and huckleberry bushes. The soil was of medium fertility with moisture plentiful.

Ribes Conditions

Ribes were found throughout the plots on an average of approximately 800 to 1000 gooseberries per acre. Similar concentration existed throughout the surrounding area except that part covered by Deep Creek Lake. All Ribes within the plots are R. rotundifolium and Ribes cynosbati, the former comprising at least 95% of the total. No skunk currants were found on the plots but these are present within a few hundred feet of the area.

Plan of Work

The data was recorded on a modification of form BRC #3, entitled "Data Sheet for Pine Infection Studies." One column was added, namely, the age of the tree. The D. B. H. was not recorded in any case since all the trees were small enough for the height to be accuratley estimated. Each tree was marked and numbered on a map scaled 1" equals 50'. The trees were also tagged with aluminum tags bearing numbers corresponding to those on the map. The first study of this area was made March 1938 and repeated February 1939.

At present (8/15/39) there are 52.3% of the trees diseased and 4.9% are dead. The oldest cankor found originated about 1931. It is planned to continue study on this plot biennially or if possible

annually until 100% infection is found and perhaps thereafter until all the trees present on the area have been killed by the disease.

For details of each block giving the number of cankers by years please refer to page 11 of Mr. Yost's Annual Report for Maryland for 1939.

Toliver Run Plots

Location

These plots are located on the south side of Oakland Crainesville Road, approximately 7.5 miles north west of Oakland. The plots are approximately 100 feet southward of the road between Toliver Run and telephone pole S-20. The area consists of ten 1/10 acre plots marked as follows: Beginning at a stake O A approximately 200 feet southward of pole S-20 was established a base line running approximately parallel to this road and five chains in length. Line B was one chain southward of this line running parallel to it. A third line one chain further southward was also marked. Numbered lines beginning with zero were then run at right angles to the base line, thus establishing the plots in the same manner as that described for the area in Deep Creek and Deep Creek Lake. These plots are on practically level ground at an elevation of approximately 2500 feet.

Ground Cover and Soil

The plots were placed on what is commonly referred to as a "rock bar" which is very stony ground with sparse soil of medium fertility. Moisture was plentiful over all the plots and area covered with sparse stands of scrub hardwoods; part of the area was covered in road side clearing work performed by C. C. C. labor and may be described as a very thin stand.

Ribes Conditions

Ribes are found throughout the plots at the rate of at least

500 to 800 bushes per acre. Practically all of the gooseberries are Ribes rotundifoilum. Skunk currants are found making a prolific growth in two locations covering approximately 1/3 of the area. Ribes conditions in the surrounding area are practically the same as on the plots. The road described above represents the limit of the control zone of area 8-Oakland Quadrangle. Ribes eradication initially was done on this area in 1935, and was mopped up in 1937.

Plan of Work

The data taken on these plots were recorded on a modification of form BRC #3 which included essentially the same data as the original form and in addition the age of the trees was recorded. Study was made in January 1938 and re-survey in 1939. It is intended to continue annual observation until all of the trees have been killed by the rust. As of this date (January 1939) 63.5% of the trees were diseased and 37% were dead. The oldest cankers found originated about 1930. 1924 cankers were found within one mile of this area.

For details of each block giving the number of cankers by years, please refer to page 14 of Mr. Yost's Annual Report for Maryland 1939.

RIBES REGENERATION ON LOGGED-OFF PINE LOT:

VIRGINIA

This plot was laid out for the purpose of studying the comeback of ribes in number and in height growth of an area formerly well covered with white pine but recently logged.

This plot may be reached by driving up the North River road from Stokesville until reaching the upper or western end of the Leading Ridge road. From the junction of these roads go south 80° west for a distance of three hundred and forty (340) feet to hickory stump which is near center of plot and is compass about nine miles above Stokesville at the Peter Seay Place, one mile below Camp Todd, the Forest Service Ranger Station. See pine area record sheet #2, for Augusta County (private land file) and detail map of study plot.

Details on this study plot giving data through 1938 were given in my Annual Report for the Southern Appalachian States for calendar year 1938 on page 93.1 to 93.4. The following table gives the data on the growth in 1939, total height in 1939 and the growth in preceding years.

RIBES STUDY PLOT - PINE AREA NO. 2 PETER SEAY PLACE

Staunton Quadrangle, Augusta County, December 1939 - Elevation 2500

LOCATION AND GROWTH OF RIBES

Number	Bearing	Chains	Links	Feet Live Stem 1937	Feet Live Stem 1938	Height in 1938
1	N 10° E	1	23	3' 1"	4' 9"	2' 1"
2	N 15° E	1	39	1' 4"	1' 7"	11"
3	S 68° E		81	5"	9"	9"
4	S 66° E		82	8"	3' 2"	11"
5	S 65° E		83	11"	1' [illegible]"	10"
6	S 65° E		82	4"	1' 1"	1' 1"
7	S 62° E		83	5"	1' 10"	2' 2"
8	S 55° E	1	7	2"	1' 5"	10"
9	S 40° E		58	5"	5"	5"
10	S 40° E		64	5"	9"	9"
11	S 38° E		85	1"	3"	3"
12	S 35° E		46	4"	1' 5"	10"
13	S 28° E		43	2"	4"	4"
14	S 04° E		55	1"	11"	6"
15	S 33° W		25	10"	1' 3"	11"
16	S 84° W		54	8"	1' 1"	1' 11"
17	N 86° W		42	2"	4"	4"
18	N 05° E	1	33	0	7"	4"
19	S 43° E	new bush	59			
Totals				10' 6"	23' 5"	15'

This plot is ½ acre in size.

RIBES STUDY PLOT (continued)
PINE AREA NO.2

Staunton Quadrangle — Peter Seay Place — Augusta County
December 1939 — Elevation 2500'

LOCATION AND GROWTH OF RIBES

Number	Growth in 1938	Feet Live Stem 1939	Height in 1939	Growth in 1939
1	1' 8"	7' 11"	2' 7"	3' 2"
2	3"	1' 9"	7½"	2"
3	4"	3"	1" 7½"	2' 3"
4	2' 6"	4' 11"	1' 3"	1' 9"
5	7"	3' 6"	1' 4"	2'
6	9"	6' 9"	1' 10"	5' 8"
7	1' 5"	6' 5"	2"	4' 7"
8	1' 3"	2' 10"	1' 2"	1' 5"
9	0	1' 8"	6"	1' 3"
10	4"	4' 2"	4' 2"	3' 5"
11	2"	5"	3"	2"
12	1' 1"	4' 3"	10½"	2' 10"
13	2"	1' 3"	1' 2"	11"
14	10"	3' 5"	1' 2"	2' 6"
15	5"	3' 1"	1' 5"	1' 10"
16	5"	1' 10"	1' 4"	9"
17	2"	11"	8"	7"
18	7"	1' 8"	8"	1' 1"
19		8"	8"	8"
Totals	12' 11"	60' 5"	21' 4½"	37'

REMARKS: No. 2 Height 7½" broken off for some reason
No. 7 Top broken off
No. 19 New Bush

SIGNED Luce and Cramer

ANALYSIS OF STUDY PLOT - INFECTED PINE AREA - VIRGINIA
Reddish Knob Drive

	1938	1939
Number of white pines	99	99
Number Infected	22	36
Per Cent Infected	22.22	36.36
Cankers		
Branch	47	94
Stem	0	0
Average per tree infected	2.14	2.19
Average per tree on plot	.47	.95
Canker Age Group		
1932		1
1933	3	2
1934	13	11
1935	14	17
1936	16	25
1937	1	20
1938		17
1939		1
	47	94

ANALYSIS OF STUDY PLOT, INFECTED WHITE PINE AREA Virginia
(continued)
Reddish Knob Drive

	Year '38	Year '39
Number of Ribes on Plot	20	20
Number of Ribes-Free-Grids	4	4
Average Number Ribes Per Acre	20	20
Man-hours spent on plot	16	24

Ribes Regeneration Plot

On the ribes regneration plot laid out on the Peter Seay Tract in the North River watershed of the George Washington National Forest, Augusta County, Virginia, which was fully described in the 1938 annual report, a check was made to obtain data as to the growth of live stem in 1939.

West Virginia

A number of study plots were marked off for observation of Ribes regeneration on a burned over area in Pendleton County. No definite results can be given at this time.



North Carolina. Large white pine growing nursery of the Soil Conservation Service, Chapel Hill, N. C. which grows from 250,000 to 500,000 white pine annually.

N. C. No. 405

Taken by H. B. Teague in 1937

INFECTION CONDITIONS

INFECTION CONDITIONS DURING 1939

DELAWARE

During August and early September extensive scouting was carried on for blister rust; many small and particularly large plantings of Ribes being examined for the rust. The result of this work was fair. We found rust on 17 gooseberries in one location, and 15 red currants in another. Both of these were at Centerville in upper New Castle County. In these two cases the bushes were destroyed. In Kent County at Cheswold, a planting of 1,000 red currants was examined, rust being present on 12; also west of Harrington rust was found on four red currants. To date no infection has been found on pine. In the spring of 1940 extensive work is to be carried on along this line. Since it has been found in these locations, it can be accepted that it is present elsewhere, for all of the known plantings were not examined. The small percentage of rust found can be attributed to the lateness of beginning this scouting work.

MARYLAND

Garrett County. Blister rust was first found on pine and Ribes in 1933. The oldest canker found was believed to have originated about 1924. Canker elimination and strip surveys indicate infections ranging from less than 1% to 47% throughout native stands. It is believed that infection on pine is generally distributed through the county.

Allegany County. Blister rust was first found on Ribes in 1931 and on pine in 1934. The oldest canker appears to have originated about 1924. One center of infection covering two or three square miles in the vicinity of Fifteen Mile Creek and Town Hill shows a light distribution of infected pine trees. The percentage of trees infected in this area is probably less than one-half of one per cent.

Washington County. Blister rust was first found on Ribes in 1931. One immature canker was found the same year. Extensive stands of white pine, mostly reproduction, were found in the western part of the County wherein to date, no infection has been found on pine or Ribes. The total infection on white pine throughout the County as a whole is practically nil.

Frederick County. Blister rust was first found on Ribes and pine in 1935, the oldest canker being of about 1930 origin. One white pine was found infected near Wolfesville and a few others near Euclid, both locations being in the Catoctin Mountain in the western end of the county. For the county as a whole infection on pine and Ribes is of no greater importance than Washington.

Montgomery County. One large planting of European black currants was found diseased from 1934 to 1937. One immature white pine canker was believed to have originated about 1934.

In Baltimore, Calvert, Harford and Prince Georges Counties, only scattered blister rust infections have been found on cultivated or escaped bushes. It is probable that pine infection is present in one or more counties, but to date none has been located.

In 1939 two new Counties were added to the list of those having blister rust infections, namely; Calvert and Prince Georges. In Calvert County a clump of wild or escaped cultivated ribes approximately 10 feet by 10 feet was found heavily infected by Mr. J. F. Gravatt on Scientist Cliffs south of Annapolis near Port Republic in July.

In Prince Georges County very light infection was found for the first time on 6 American black currants (Ribes americanum) at the Horticultural Experimental farm at Beltsville, by H. E. Yost. Yellow flowering currants and cultivated gooseberries (R. grossularia crossed with R. ochnota) growing in the same plantations were free from rust.



Maryland. The blister rust is found on sapling white pine in western Maryland, Garrett County. Damage has taken place in unprotected areas.

Md. Roll 50 Photo 5.

by H. E. Yost

LIST OF COUNTIES IN MARYLAND SHOWING YEAR
WHITE PINE BLISTER RUST WAS FIRST FOUND ON RIBES OR PINE

COUNTY	Year Ribes Infection First Found	Year Pine Infection First Found	Probable Year Origin of Oldest canker
Allegany	1931	1934	1924
Baltimore	1937		
Calvert	1939		
Carroll	1937		
Frederick	1931	1931	1931
Garrett	1933	1934	1924
Harford	1937		
Montgomery	1934	1936	1934
Washington	1931	1931	1929
Prince Georges	1939		

LIST OF COUNTIES IN VIRGINIA SHOWING
YEAR WHITE PINE BLISTER RUST WAS FIRST FOUND
ON RIBES OR PINE

County	Year Ribes Infection First Found	Year Pine Infection First Found	Probable Year Origin of Oldest canker
Albemarle	1939		
Alleghany	1937		
Augusta	1932	1933	1922
Bath	1935		
Clarke		1911	
Frederick	1931		
Greene	1938	1939	1936
Highland	1935	1937	
Madison	1932	1933	1925
Nelson	1934		
Page	1932	1934	
Rappahannock	1931	1934	
Rockbridge	1938		
Rockingham	1934	1934	
Shenandoah	1938		
Warren	1938		

LIST OF COUNTIES IN WEST VIRGINIA SHOWING YEAR
WHITE PINE BLISTER RUST WAS FIRST FOUND ON RIBES OR PINE

County	Year Ribes Infection First Found	Year Pine Infection First Found	Probable Year Origin of Oldest Canker
Greenbrier	1937		
Hardy	1938	1939	
Pendleton	1934	1934	
Pocahontas	1933	1939	
Preston	1939		
Randolph	1931		
Tucker	1931	1939	

WEST VIRGINIA

Four counties were added to the known range of the rust on white pine in 1939. In January, Mr. Early, Agent from Virginia discovered a pine infection in Caplinger Hollow near Church Mountain in Hardy County while scouting over the West Virginia line. Mr. Pierce, later, discovered a pine infection on Waites Run in the same county.

In May a single canker was found on the Horseshoe Camp ground in Tucker County by J. M. Ashcroft. This infection was probably the result of a fairly heavy Ribes infection in that county in 1935.

While checking an area from which Ribes were eradicated in the fall of 1935 and spring of 1936, Mr. Ball discovered a small area of infection on pine near Dunmore. These infections probably occurred in 1935 before the initial eradication was performed, since infections were found quite generally distributed on Ribes bushes in that section in 1935. A search for pine infections on one other pine lot in the same section failed to disclose any, although Mr. Welch reports the discovery of the rust on Ribes eradicated from the lot when it was eradicated initially in 1935.

In October Mr. Craig, State Entomologist, forwarded a rust specimen on pine to the State Leader for identification which he had found in the vicinity of Silver Lake in Preston County. The month before Mr. Pierce reported the discovery, for the first time, of the rust on Ribes in the same county near the Tucker County line. The rust was found for the first time on both Ribes and pine, therefore, in the period of a month. Since the county is not considered among the major pine counties, no general survey has been made of rust conditions in the county.

Conditions were, from all indications, very favorable in 1939 for the spread of the rust. Mr. McKeever, in charge of field work in Hardy county reported, Ribes infections common in vicinity of Lost River, McCauley Post Office and Hunkerson Gap, sections eradicated during the year. Similar

reports were received from Mr. Hamilton of conditions in Pendleton County in the sections worked and especially along the ridge of the Shenandoah Mountain.

Blister rust has been discovered in seven counties in West Virginia on Ribes and in five counties on pine. Nevertheless little damage has been done so far. The only section of the State where pine infections are known to be numerous is in Pendleton County along the ridge of the Shenandoah Mountain separating West Virginia from Virginia.

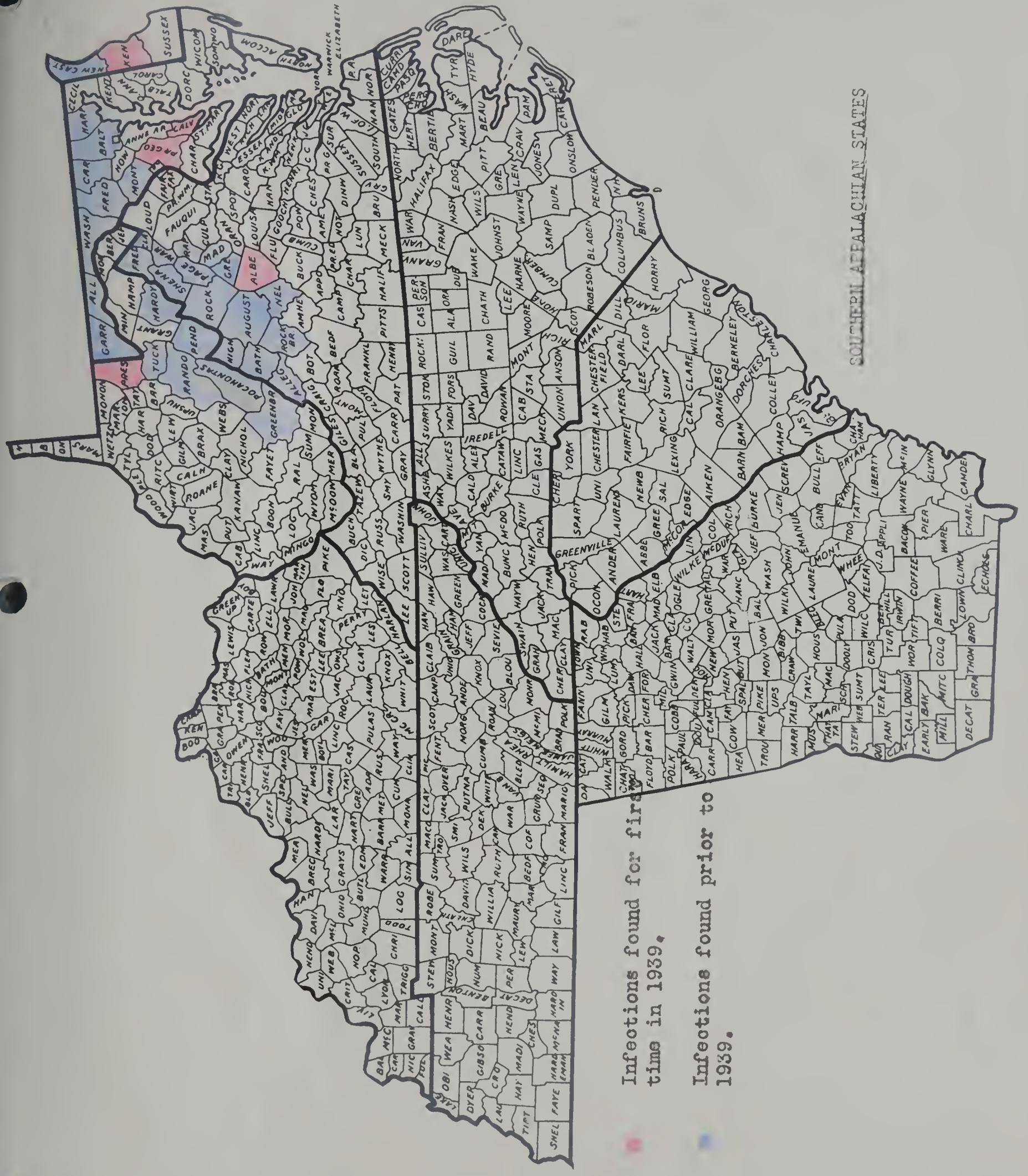
LIST OF COUNTIES IN WEST VIRGINIA SHOWING YEAR IN WHICH INFECTION ON RIBES AND/OR PINE WAS FOUND

County	Year Ribes Infection was first found	Year Pine Infection was first Found	Probably Year of origin of oldest Cankers	Remarks
Randolph	1931			Pine trees in county few and scattered. Not considered among white pine counties.
Tucker	1931	1939	1935	Single pine infection found 5/12/39 at Horse-shoe Forest Camp near Parsons, W. Va. probably resulting from heavy Ribes infection in 1935
Pocahontas	1933	1939	1935	Few pine trees in small area found infected on pine lot Cass 36 Dunmore, W. Va., 7/19/39 by Ball
Pendleton	1934	1934	1929-1932	Worst known area of pine infection in State is along crest of Shenandoah Mountain. Considerable damage to pine stand in vicinity of Bother, Reddish and Cow Knobs.
Greenbrier	1937			Few Ribes infections found in 1937 and again in 1938. No damage known as yet on pine.
Hardy	1938	1939	1935	Few scattered infections found in 1938. In 1939 Ribes infections common in vicinity Lost River.

West Virginia

County	Year Ribes Infection was first found	Year Infection was first found	Probable Year of origin of oldest cankers	Remarks
Preston	1939	1939		Ribes infection first found by R. G. Pierce in September 1939 near Tucker County line. Pine infection found by Mr. Craig, State Entomologist at Silver Lake in October 1939. No extensive survey of country for rust has been made because county is not a major pine county.

Map of the Southern Appalachian States Showing Counties in Which Blister Rust Infections Have Been Found Through December 31, 1939



INFORMATIONAL ACTIVITIES

Delaware

Mr. Pufahl had a three day exhibit of blister rust showing charts, photographs and specimens at the Tri-State Horticultural show at Easton, Maryland. Considerable interest was shown in the exhibit. The Horticultural show represented the Eastern Shore of Maryland, the Eastern Shore of Virginia and the State of Delaware.

Georgia

In cooperation with the U. S. Forest Service and Gilmer County Fire Protection Association, a booth exhibit was arranged for the Gilmer County Fair at Ellijay, Georgia.

Through the cooperation of County Agents, pamphlets were distributed at the Towns County Fair at Hiawassee, Georgia, the Pickens County Fair at Jasper, Georgia, and the Fannin County Fair at Blue Ridge, Georgia. The State Bureau of Entomology carried blister rust as a headline on their panel exhibit at the Georgia State Fair at Macon, Georgia; and this panel exhibit has become a part of a permanent exhibit at the State Capitol in Atlanta, Georgia. Several thousand pamphlets were distributed at these different places and a large number of persons were interested in protection of timber.

Mr. Yeomans, the State Entomologist, has planned with Mr. Zimmer to take motion picture films in color of blister rust in Georgia showing white pine, gooseberries, survey and eradication work in the State. For the rust itself Mr. Murphey, Assistant State Entomologist, is taking the photographs. The photographs of the rust will have to be taken in 1940 in Virginia and Maryland.

Maryland

Mr. Yost, had an exhibit at the Timonium Fair from September 1d



Maryland. Blister Rust Control Exhibit in a hardware store window Oakland, Maryland. Such displays as this in centres of heavy blister rust infection attract much attention.

Maryland No. 7

Photo by H. E. Yost

Maryland (continued)

to September 16. This is practically a State Fair, Timonium being not far from Baltimore. Mr. Yost was present at Timonium September 2 and 9. No count was made of the persons seeing the exhibit.

North Carolina

Mr. Teague presented a lantern slide demonstration to the WPA supervisors of the Asheville district in November. Approximately three dozen supervisors and State WPA officials were peesent.

A panel exhibit was placed in the lobby of the Buncombe County Court House during Rhododendron Festival week in June; and the same exhibit was on display at the State Test Farm at Swannaoa in August. It is estimated that 5,000 persons viewed the panel exhibit at the two showings.

Tennessee

The usual informational service was carried on during 1939 in Tennessee, the most varied and informative being 2,654 initial interviews and 1325 publications distributed.

Virginia

Messrs. Luce and Pierce conferred with the President of the Virginia Federation of Garden Clubs on Friday October 6. They have a membership of 5,000 women. The vice president Mrs. Corrie of Richmond had requested me to present the matter of blister rust control to the president Mrs. C. A. Seaton of Staunton, who with the Board of Directors had just taken up the matter of conservation. The Federation of Garden Clubs had sponsored a planting of white pine at the Roberson State Forest and this has already been protected from the blister ruwt.

One of the most practical kinds of informational work in Virginia was that of taking a group of Girl Scouts from Camp May Flather above Mt. Solon in Augusta County, Virginia to various places in the George Washington National Forest and having them actually destroy the currants and goose-

Virginia (continued)

berries near the white pine. A trip to the heaviest infected areas was made by these girls where they saw infection on pine and Ribes in various stages. Similar educational work was carried out with a group of Boy Scouts from Charlottesville and a group of boys from Bear Trail Camp near the President's Camp. Both groups of boys worked in the Shenandoah National Park and were shown the disease on currants and gooseberries.

West Virginia

The regular type of informational activities were conducted along with the control program, including the publication of news items, distributuon of publications, and personal interviews with owners of pine stands. A "talk" was given before an audience of CCC boys from Camp Raleigh.

SUMMARY OF INFORMATIONAL SERVICE CARRIED ON DURING THE CALENDAR YEAR 1939

	Dela.	Ga.	Kentucky	Md.	North Car.	Tennessee	Virginia	West Va.	Totals
Meetings				1	9	18	48	1	77
Attendance at Meetings				32	303	214	1482	25	2056
Items Published	15			1	11	12	9	3	50
Demonstrations placed	1	5		1	2	5	4		18
Initial Interviews	392	298		97	175	2634	173	395	4164
Follow-up calls	57	72		210	61	496	4	36	936
Individuals instructed		64	20	1087	449	404	585	54	2663
No. Publications distributed	179	510	25	126	175	1,625	2732	1086	6458
No. Posters placed		123			29	26	122	118	418

C H E C K I N G

CHECKING

In the past, checking for Ribes in the Southern Appalachian States was mainly confined to areas where Ribes were in such concentration as to warrant crew work. No definite system of checking was used, the efficiency of the crew work being determined by laying out a series of random check plots. The percentage of checks used was not consistent, the acreage covered by the check often being too small in respect to the acreage covered by the Ribes eradication crews. In a few cases, however, 100 per cent checks were turned in, which in most cases were not checks in the true sense of the word but a "mop-up" job by a full crew of men.

The importance of checking is now being taken more seriously and it is expected that checking organizations in the respective states will be formed to carry on all checking work in a logical and efficient manner.

TYPES OF ~~RIBES~~ CHECKS

Although not going into such details of checking as applied in the Western Regions we are now however using such terms as "Regular", "Advance" and "Post" checks. Briefly these are defined as follows:

1. Regular Check: This is a check immediately following Ribes eradication to determine whether an area is safe to leave without additional working or to determine from such checks what portion of an area may be in need of reworking.

2. Advance Check: This is a check made on an area prior to any Ribes eradication work. An advance check is for the purpose of determining how much crew or scout work will be needed and

delimiting all areas which are Ribes-free.

3. Post Check: This is a check conducted two or more years following Ribes eradication to determine the extent of Ribes regeneration and, from the checking data obtained, to determine what is in need of immediate working, and how much acreage can be placed on maintenance.

CHECKING METHOD NOW IN COMMON USE

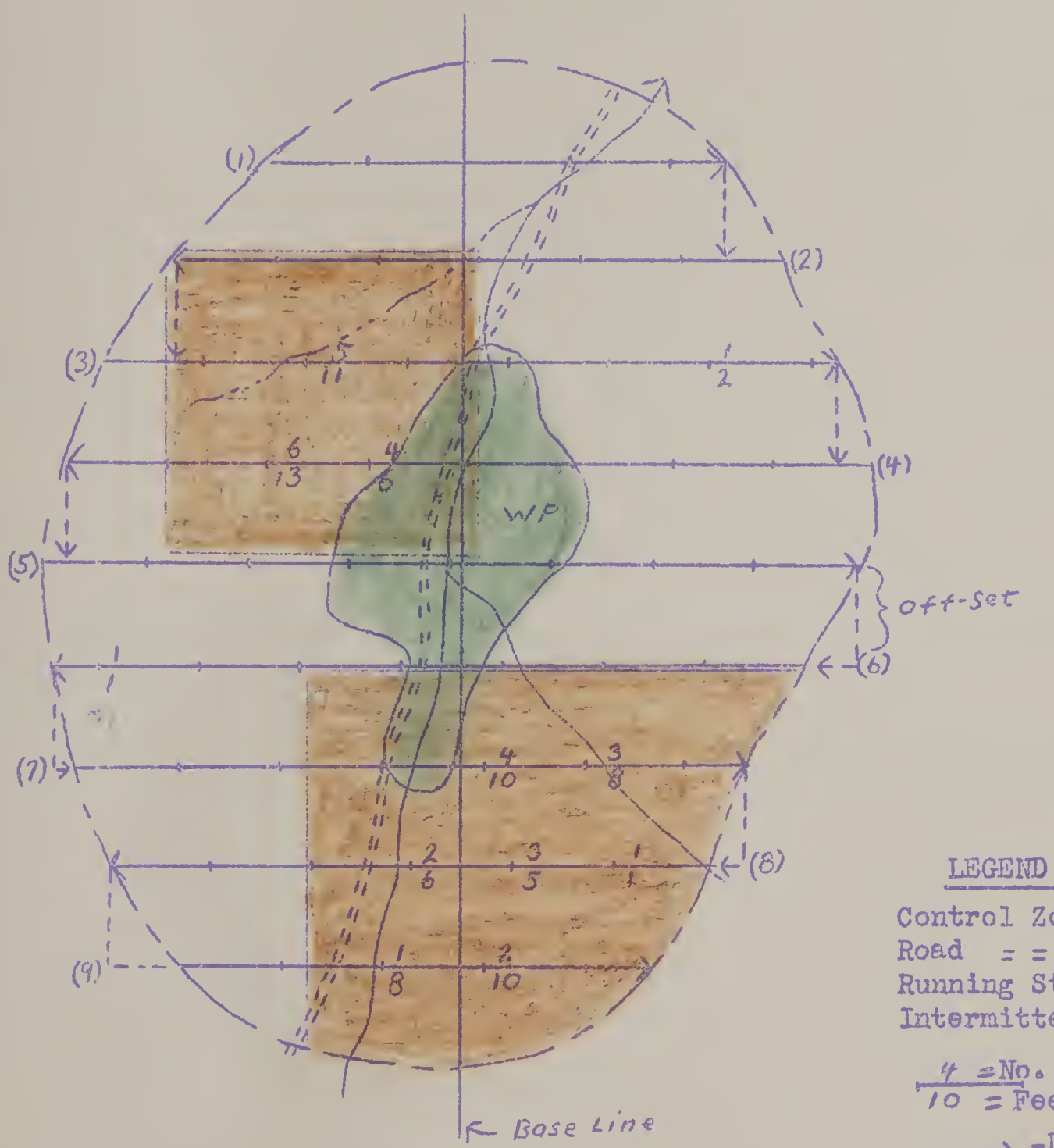
Continuous strip checks are now being employed in all states. Two strips are 1/4 chain wide and all Ribes data are recorded by one chain transects. In the case of Regular checks the checker uses a pine area map with the strips plotted thereon as a field guide and in order to insure a representative sampling of the area to give at least a 2½ per cent check. All strips are run in cardinal directions, the strips being planned so as to run as much as possible at right angles to drainages. Advance checks are only conducted at the present time in conjunction with preeradication survey with an average of 2½ per cent coverage. All Ribes found on the strips are plotted on the survey map as a guide for the eradication crews. Post checks are conducted in the same manner as are the Regular checks except that a 5 per cent check is recommended on all old crew worked areas before it is determined that such areas are to be placed on a maintenance basis.

The details of checking methods will not be explained here since a checking manual for use in the Southern Appalachian States is to be written in the near future. The following two pages show samples of a checking map and a checking summary sheet (fnrm BRC-D Revised) respectively.

CHECKING MAP

(Hypothetical case to illustrate method of running a five per cent Regular or Post check. The following (BRC-D Revised) form shows method of summarizing checking data.)

Scale - 8" = 1 mile



LEGEND

Control Zone — ——— —
Road = = = = = = = =
Running Stream ⟶
Intermittent stream ···⟶

4 = No. of Ribes
10 = Feet of Live Stem

⟶ = Direction of strip

= Area in need of Ribes eradication

J. C. B.
5/11/4c

BRC-D
(Rev.7/10/39

CHECKER'S SUMMARY REPORT
(use separate sheet for each job)

(SAMPLE)

Pine Area No. _____

Type of Check: 1st. Post
(Reg., Post, Advance

Local Name of Area: _____

Grid No's. _____

State: _____ County: _____ Quadrangle: _____ Forest: _____

Owner: _____ Address: _____ Native or Planted Pine: Native

Checker: John Doe Date: 5/10/40

(ERADICATION SUMMARY)

Control Acreage in Area: 145

Acres Worked in Area:--------- Crew: 145 Scout _____ B.O. _____ Total 145

Ribes Pulled By:---------- Crew 12,000 Scout _____ Total 12,000

Man Hours Expended:---------- Crew 1300 Scout _____ B.O _____ Total 1300

(CHECKER'S SUMMARY)

Strip ~~or Plot~~ Acres in Check- Crew 7.3 Scout - B.O. - Total 7.3
(cross out system not used)

Per Cent of Check:- ---------Crew 5 Scout - B.O. - Total 5

Checking Man Hours:----------Crew 20 Scout - B.O. - Total 20
(charged to eradication)

Ribes and feet of live stem found on check (record Ribes by species)

Species	Number of Bushes		Feet of Live Stem		Total		Seedlings (yes or no)
	Crew	Scout	Crew	Scout	Crew	Scout	
R. cynosbati	33	-	81	-	33	81	Yes
R.							
R.							
R.							
Total	33	-	81	-	33	81	Yes

*Bushes Per Acre: Crew 4.5 Scout - Total 4.5

*F.L.S. Per Acre: Crew 11.1 Scout - Total 11.1

Years Worked: (1) 1936 (2) _____ (3) _____ (4) _____ (5) _____ (6) _____

*To find the number of Ribes and feet of live stem on a per acre basis, divide the total number of bushes and feet of live stem by the plot or strip acres contained within the eradication type.

TABLE GIVING CHECKING RESULTS (BY STATE, COUNTY AND NUMBER OF PINE AREAS) In the Southern Appalachian States for 1939

State	Counties	No. of Areas	Acres Checked	% of Check	Man-hours	Ribes Found	F.L.S. Found	Per Acre Ribes	Per Acre F.L.S.
Georgia(1)	Murray	24	218	1.1	266	129	320	0.6	1.5
Maryland(2)	Garrott	16	237	2.5	2096	2201	49919	9.3	210.0
N. Carolina(3)	Avery	38	70	1.6	568	298	1417	4.3	20.2
	Buncombe	12	114	2.5	733	321	857	2.8	7.5
	Haywood	20	223	2.5	112	139	2343	0.6	10.5
	Mitchell	41	79	0.6	326	59	542	0.7	6.9
	Watauga	12	64	2.5					
Tennessee	Campbell	1	1						
	Carter	82	298	0.5	1446	4	4	-	-
	Polk	11	163	0.6	185	-	-	-	-
	Rhea	2	7	1.9	120	149	65	21.3	9.3
	Unicoi	9	19	1.9	325	383	103	20.2	5.5
Virginia	Augusta	3	57	2.5	192	88	711	1.5	12.5
	Highland	4	13	2.2	30	36	40	2.8	3.1
	Page	15	71	2.5	328	261	1366	3.7	19.3
	Rockingham	20	50	0.7	164	75	72	1.5	1.4
	Shenandoah	4	27	2.5	104	69	136	2.5	5.1
West Va.	Hampshire	3	30	2.5	4	-	-	-	-
	Hardy	38	368	1.2	267	135	192	0.4	0.5
	Mercer	34	453	2.5	510	1087	2237	2.4	4.9
	Pendleton	9	131	1.9	131	9	7	0.07	0.05
	Raleigh	31	359	1.9	521	622	1902	1.7	5.3
TOTAL		429	3,052	1.9	8,428	6,065	62733	2.0	20.7

(Notes on Preceding Page)

(1) The checking data for Georgia is incomplete in that very few advance checks are included on areas blocked-out as Ribes-free.

(2) The checks in Maryland were all advance and post, hence the large number of feet of live stem found.

(3) As in the case of Georgia, all advance checking data are not shown.

Notes to follow foregoing table

The foregoing table shows concisely a large increase in the amount of checking accomplished during 1939 as compared to that of previous years and a decided rise in the per cent of checks made. Many factors in methods of checking, however, including crew organization, proper recording of data, and the making of checking maps, have yet to be ironed out.

J. C. Ball

LOCAL CONTROL

LOCAL CONTROL

Summary

In 1939 Ribes eradication was carried on in eight States, one less than in 1938, viz; in Delaware, Georgia, Kentucky, Maryland, North Carolina, Tennessee, Virginia and West Virginia. Laborers were secured from the WPA project in the States of Delaware, Georgia, Maryland, North Carolina, Tennessee, Virginia and West Virginia; from the Regular and Cooperative project in Delaware, Kentucky, North Carolina and Virginia; from the ECW or CCC project in Maryland, North Carolina, Tennessee, Virginia and West Virginia.

Table 1 Summary of Ribes Eradication Data for Southern Appalachian States for 1939 and for Period 1918 to 1939 Inclusive

Year	Acreage Worked	Number of Ribes Destroyed			Total 8 hour man-days labor
		Wild	Cultivated	Total	
1939	491,106	3,129,928	100,923	3,230,851	34,218
1918-38	5,624,140(1)	21,481,943	1,109,159	22,591,102	195,448
1918-39	6,115,246	24,611,871	1,210,082	25,821,953	229,666

Year	No. Ribes Bushes Destroyed Per Man-days	Per Acre	No. 8 hour days per Acre	Cost Data Total	Per Acre
1939	94.2	6.58	0.069	$ 84,218.21	.1714
1918-38	115.6	4.01	0.035	483,650.67	.086
1918-39	88.0	4.23	0.039	567,868.88	.093

(1) This includes 1875 acres worked in District of Columbiar prior to 1939, but not reported last year.

BY PROJECTS

Detailed statistics on eradication figures by States are to be found in the Omnibus Statistical Tables 1 and 1A, 2 and 2A and 4B at the front of this report, while data on costs are to be found in Tables 4 and 4A.

The following table shows the results of ribes eradication by programs.

Table 2 - Summary of Ribes Eradication Data for Southern Appalachian States for 1939 and for Period 1918 to 1939 Inclusive

Program	Acreage Worked	Number of Ribes Destroyed Wild	Culti.	Total	No. 8 hour men-days
1939					
Regular and Coop.	3,966	2,180	277	2,457	58
Federal WPA	379,922	2,780,173	98,444	2,878,617	25,067
State WPA	33[illegible],9[illegible]1	159,579	415	159,994	5,127
Sub. Total WPA	416,8[illegible]3	2,939,752	98,859	3,038,611	30,194
CCC and ECW	70,317	187,996	1,787	189,783	3,966
Total Emergency Programs	487,140	3,127,748	100,646	3,228,394	34,160
Grand Total All Programs 1918-39 incl.	491,106	3,129,928	100,923	3,230,851	34,218
Regular	80,144	253,699	4,933	258,632	1,099
Federal WPA	3,101	18,658,972	1,007,766	19,666,738	167,218
State WPA	36,901	159,579	415	159,994	5,127
Sub total WPA	4,050,002	18,818,551	1,008,191	19,826,732	172,345
CCC and ECW	398,881	3,090,910	9,944	3,100,854	36,994
PWA	1,585,219	2,448,711	187,024	2,635,735	19,228
Total Emergency Programs	6,035,102	24,358,172	1,205,149	25,563,321	228,567
Total all Programs	6,115,246	24,611,871	1,210,082	25,821,953	229,666

BY WORKING

Local Control Began in 1929 in Virginia, in 1933 in Maryland, North Carolina, South Carolina, Tennessee, Virginia and West Virginia; in 1934 in Kentucky and in Delaware and District of Columbia in 1938.

In 1939, 73 per cent was initial work and 27 per cent reworking contrasted to 90 per cent initial work, and 10 per cent rework in 1938. From 1918 to 1939 inclusive the gross acreage reported initially worked was 5,218,228 acres or 85 per cent of all lands worked. While the net acreage given is the same, it is likely that this latter figure will be reduced when ledger sheets have been completed for all counties. 899,016 acres or 15 per cent of lands worked have been reworked. The acreage worked and costs for past four years are shown below.

Table 3 Summary of Acreage Worked in Past Four Years for the Southern Appalachian States by Working Including Costs

Year	Initial Working	Reworking	Total	Eradication Costs	
				Total	Per Acre
1936	1,169,073	244,196	1,413,269	$103,712.11	0.089
1937	844,034	404,739	1,248,773	99,239.82	0.117
1938	633,442	71,566	705,008	91,921.40	0.125
1939	359,132	131,974	491,106	84,218.21	0.171

Costs per acre have increased yearly due to a number of factors, the increase in 1939 being largely due to increase in rates of pay of laborers.

Table 4 Summary of Ribes Eradication Data by Working for Period 1918 to 1939 Inclusive

Working	Acreage Worked	No. of Ribes Destroyed Wild	Cult.	Total	No. 8 hour Man-days
1939					
Initial	359,132	2,489,852	38,308	2,887,292	22,588
Rework	131,974	640,076	62,615	834,665	11,630
Total 1918-39	491,106	3,129,928	100,923	3,721,957	34,218
Initial	5,216,228	21,657,092	1068,805	27,942,125	186,579
Rework	899,018	2,954,779	141,277	3,995,074	43,087
Total	6,115,246	24,611,871	1210,082	31,937,199	229,666

Period	Percentage Acres Worked of Total Acreage Worked (1) First Work	Rework	Ribes per Acre First Work	Rework	Man-Days First Work	Rework
1939	73	27	7.1	5.3	0.06	0.09
1918-39	85	15	4.3	3.3	0.036	0.048

(1) These figures differ from figures in Table 1, Sheet 1 and Table 1A, Sheet 2, which are on basis of percentage of estimated total white pine control acreage in State.

Comparison of Results of Ribes Eradication in Southern Appalachian States from 1918-1939 by years

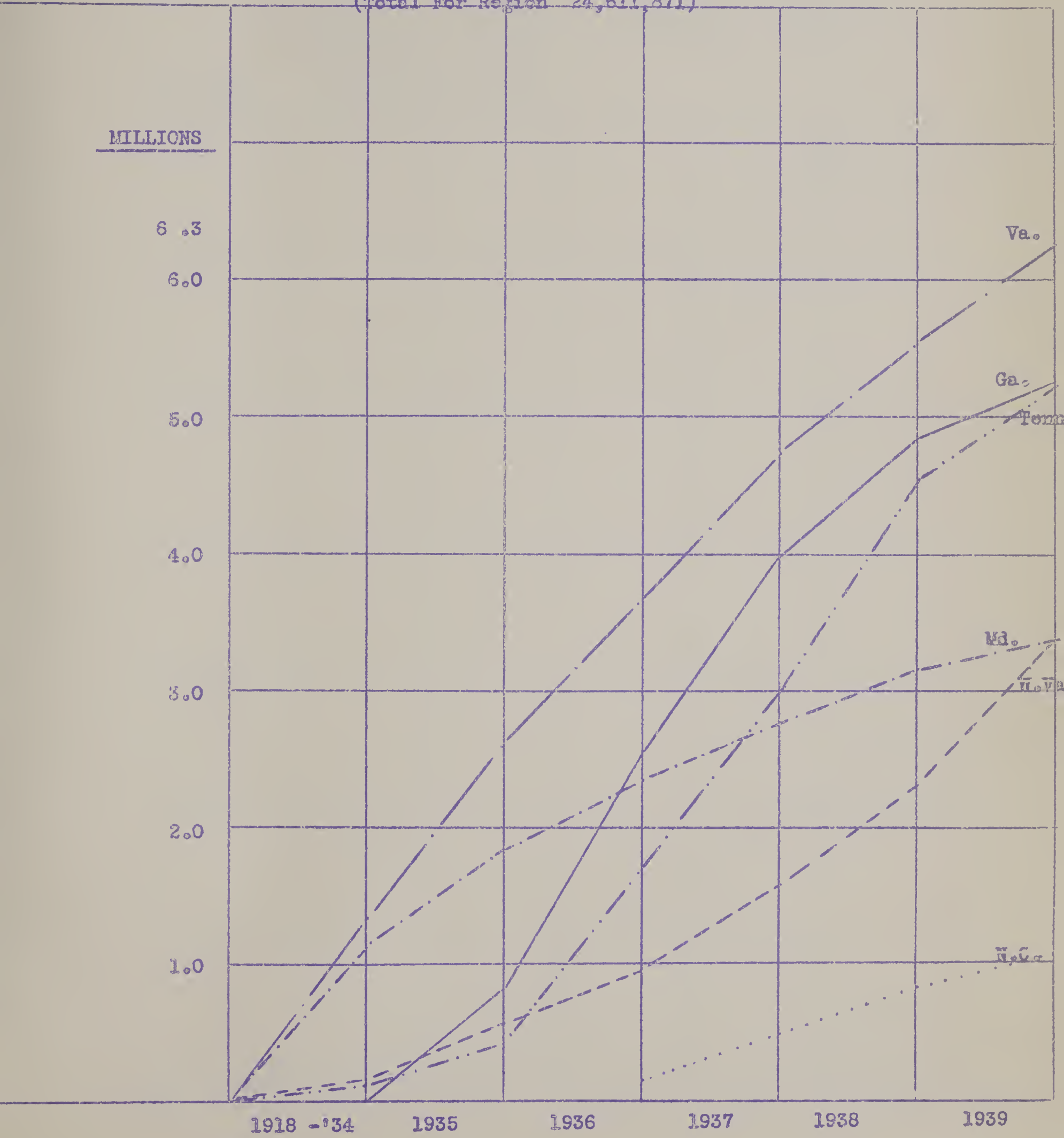
Year	Total Acreage Worked	Total Number Ribes Removed	No. man-days labor	Cost Total	Cost Per Acre
Up to 1934	1,826,291	5,966,666	26,764	$158,717.00	$0.087
" " 1935	398,924	852,872	34,327	32,276.00	0.083
" " 1936	1,413,269	5,804,474	44,717	103,712.00	0.073
" " 1937	1,248,773	5,216,119	48,812	99,239.81	0.079
" " 1938	736,883(1)	4,750,971	40,828	89,705.86	0.122
" " 1939	491,106	3,230,851	34,218	84,218.21	0.171
Total	6,115,246	25,821,953	229,666	$567,868.88	

(1) Includes 1875 acres in District of Columbia not reported in 1938 Annual Report.

GRAPH SHOWING NUMBER OF WILD BUSHES DESTROYED

IN THE SOUTHERN APPALACHIAN STATES B Y
YEARS 1918 to 1939 INCL.

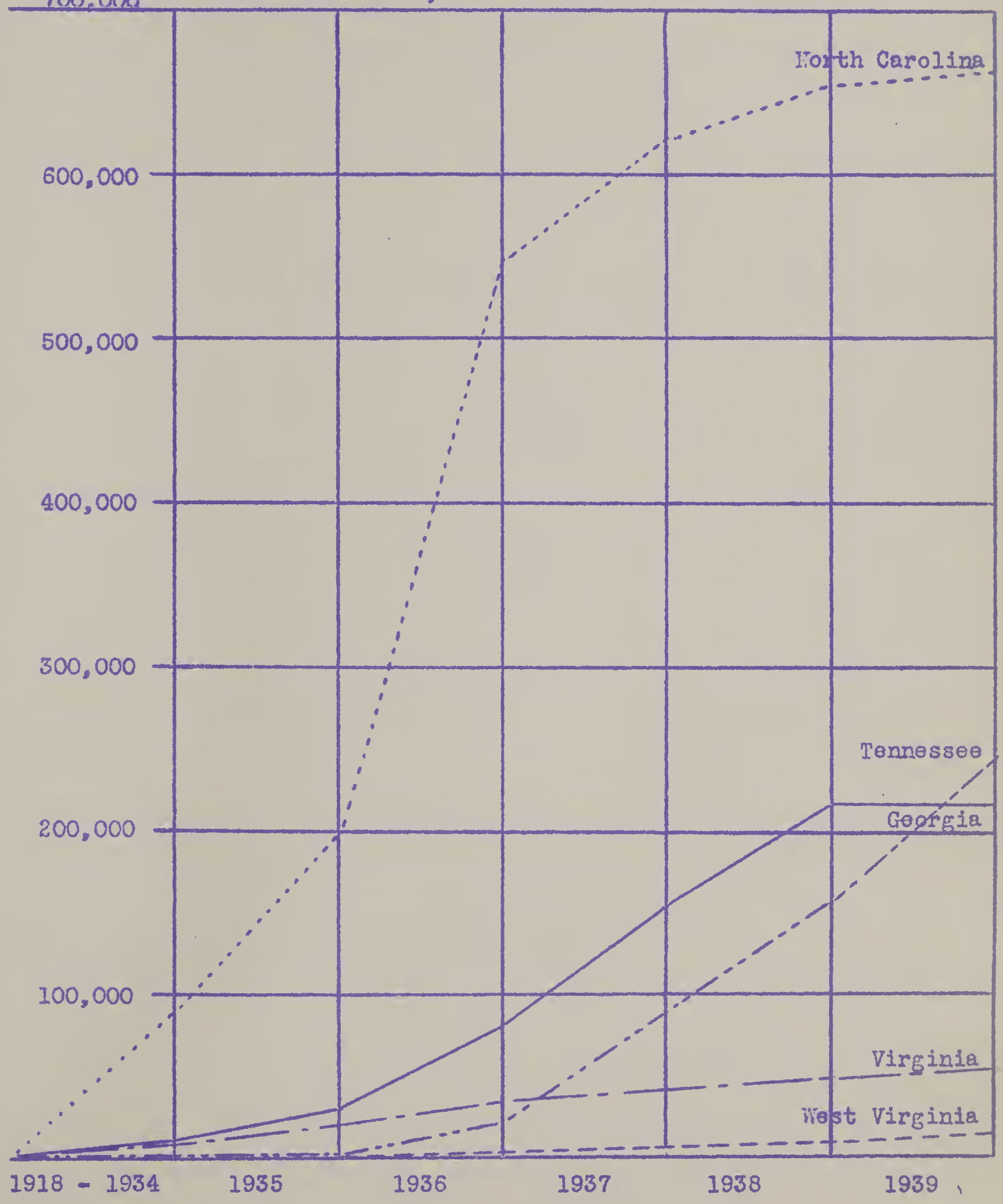
(Total For Region 24,611,871)



GRAPH SHOWING NUMBER OF CULTIVATED RIBES DESTROYED IN THE SOUTHERN APPALACHIAN STATES - BY YEARS 1918 - 1939 INCL.

(TOTAL FOR REGION - 1,210,082)

Delaware---	2000	Tennessee---	245,581
Georgia----	215,838	Virginia----	54,200
Kentucky---	1,337	W.Virginia--	13,840
Maryland---	7,639		
N.Carolina-	661,660		
S.Carolina-	7,487		



As a matter of interest the following curves were plotted on average net acres worked, average Ribes pulled and average cost. All figures were averaged for each year (from 1933 to 1939 inclusive) and plotted on graph paper. The acreage curve was quite eratic between the years 1934 and 1935 so the mean was figured between years which smoothed out the curve considerably.

The purpose of making these curves was to try and show a definite relationship between net acres worked, number of Ribes pulled and cost of ribes eradication. By examining the curves it will be noted that the average ribes curve follows closely the trend of the average net acreage curve. The cost curve is broader and tends to flatten out near the year 1938. This is probably due, to some extent, to the wage scale increase.

If the curves have any value it can therefore be assumed that for the next two or three years the cost of ribes eradication will tend to remain around the present average level, or slightly rise, since the bulk of the initial work is now complete and all subsequent reworkings, in the final analysis, must of necessity be charged against the net acreage worked. Besides the increase in wage rates other factors which may tend to keep the cost of ribes eradication up would be using too many men on reeradication; covering the ground too thoroughly with respect to the number of Ribes originally found; working areas with crews of men which may be totally or partially eliminated from crew work by running post checks and working pine areas of heavy Ribes concentration which may not warrant protection.

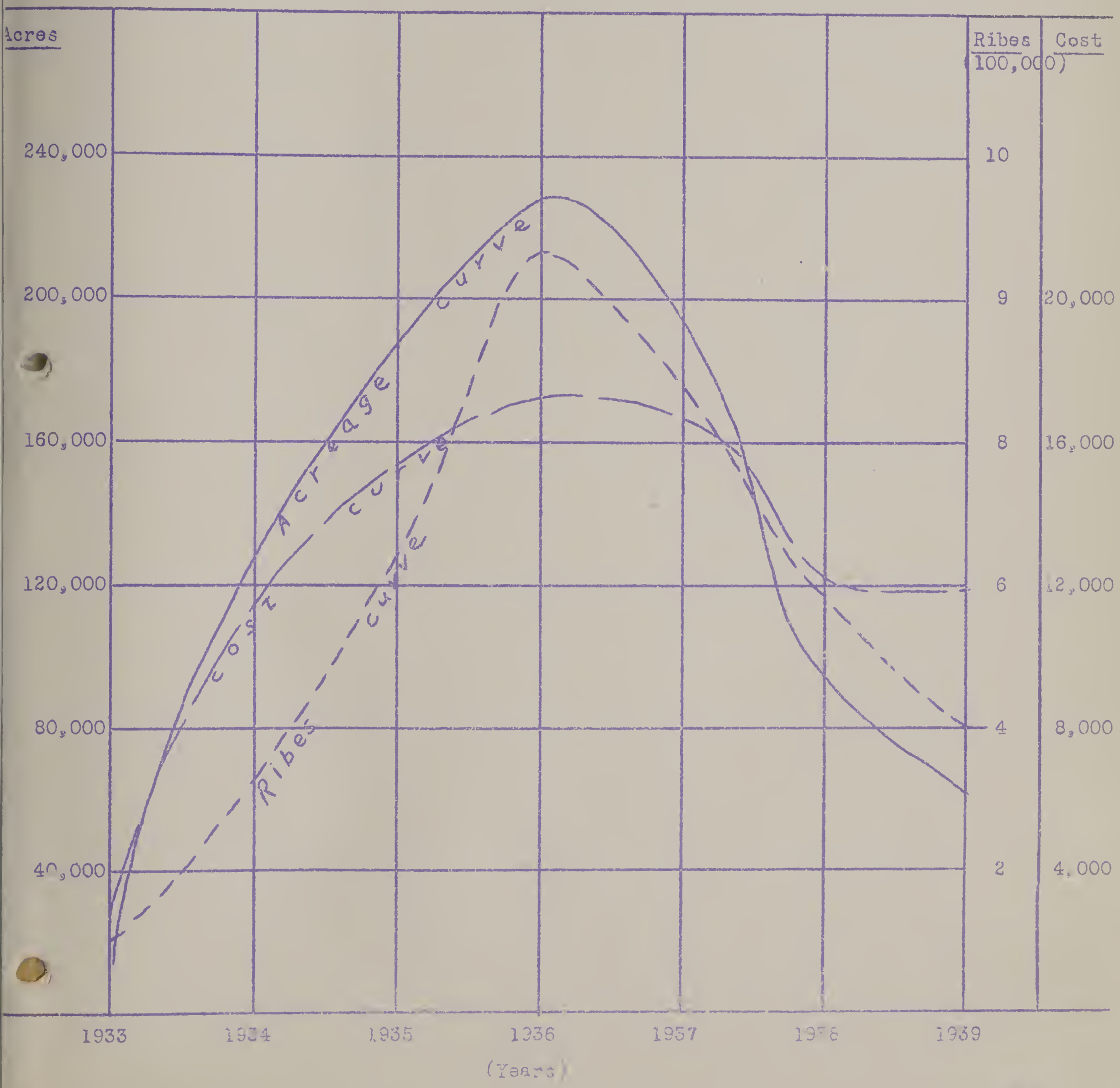
J. C. Ball
5/20/40

AVERAGE TREND CURVES FOR NUMBER ACRES WORKED, RIBES PULLED

AND COST ON RIBES ERADICATION FROM 1933 TO 1939 INCLUSIVE

IN THE SOUTHERN APPALACHIAN STATES

(Acreage figures are for initial work only)
(Curves plotted by averaging figures from all States by years.)



JCB

BLISTER RUST CONTROL WORK
PERFORMED ON NATIONAL FOREST LAND - SOUTHERN APPALACHIAN STATES
1939

State	Acreage National Forest Land in Control Area	Acreage Eradicated of Ribes By Forest Service 1st Working	2nd Working	3rd Working	By Bureau 1st Working	2nd Working	3rd Working	Total Acreage Eradicated of Ribes by Both Agencies 1st Working	2nd Working	3rd Working	Total Acreage Worked in 1939, 1st 2nd & 3rd	Accumulative Total of 1st Working thru 1939	Estimated Unworked Acreage
Georgia	375,000	-	-	-	23,480	-	-	23,480	0	0	23,480	363,221	11,779
Kentucky	30,565 (1)	-	-	-	2,792	237	-	3,029	237	0	3,029	30,565	-
North Carolina	180,000	-	-	-	-	42,100	-	-	42,100	0	42,100	177,686	2,314
Tennessee	200,000	-	-	-	31,352	12	-	31,352	12	0	31,364	154,510	45,490
Virginia	125,000	-	-	-	13,752	6,961	-	13,752	6,961	0	20,713	109,691	15,309
West Virginia	130,000	-	-	-	24,033	7,641	-	24,033	7,641	0	31,674	111,085	18,915
South Carolina	3,700	-	-	-	-	-	-	-	-	0	-	3,700	-
Totals	1,044,265	-	-	-	95,409	56,951	-	96,409	56,951	0	152,360	950,458	93,807
All Southern [illegible] inclusive													
Georgia 1933		8,112	-	-	-	-	-	8,112	-	-	8,112	8,112	
1934		6,642	-	-	-	-	-	6,642	-	-	6,642	14,754	
1935		-	-	-	[illegible]	-	-	[illegible]	-	-	[illegible]	[illegible]	
1936		-	-	-	73,655	-	-	73,655	-	-	73,655	214,385	
1937		-	-	-	49,381	1,250	-	49,381	1,250		50,631	263,766	
1938		-	-	-	75,975	-	-	75,975	-		75,975	339,741	
1939		-	-	-	23,480	-	-	23,480	-	-	23,480	363,221	
Totals	375,000	14,754	-	-	348,467	1,250	-	363,221	1,250	-	364,471	363,221	11,779
Kentucky 1934					27,773 (1)			27,773 (1)			27,773 (1)	27,773	
1939					2,792 (2)	237		3,029 (2)	237		3,029	30,565	
Totals	30,565				30,565	237		30,565	237		30,802	30,565	
North Carolina '33		27,560						27,560			27,560	27,560	
1934		24,598						24,598			24,598	52,158	
1936						29,332			29,332		29,532	-	
1937		590	31,861		95,228	13,917		95,818	45,778		141,596	147,976	
1938					29,710	24,997	2	29,710	24,997	2	54,709	177,686	
1939		-	-		-	42,100	-	-	42,100	-	42,100	177,686	
Totals	180,000	52,748	31,861		124,938	110,346	2	177,686	142,207	2	319,895	177,686	2,314

(1) Control acreage taken from 1934 pine area estimates which fall in National Forest purchase boundary (subject to correction) never before included in table.

(2) Includes control acreage for 87 acres native white pine and 77 acres planted white pine.

BLISTER RUST CONTROL WORK
PERFORMED ON NATIONAL FOREST LANDS - SOUTHERN APPALACHIAN STATES
1939
(Continued)

State	Acreage National Forest Land in Control Area	Acreage Eradicated of Ribes By Forest Service Working			By Bureau Working			Total Acreage Eradicated of Ribes by Both Agencies Working			Total Acreage Worked in 1939, 1st 2nd & 3rd.	Cumulative Total of 1st Working thru 1939	Estimated Unworked Acreage
		First	Second	Third	First	Second	Third	First	Second	Third			
South Carolina													
1933		425	-	-	-	-	-	425	-	-	425	425	
1934		-	-	-	2,575	425	-	2,575	425	-	3,000	3,425	
1938					700			700			700	4,125	
1939													
Totals	3,700	425	-	-	3,275	425	-	3,700	425	-	4,125	4,125	
Tennessee 1933		8,895	-	-	-	-	-	8,895	-	-	8,895	13,020	
1934		11,970	-	-	-	-	-	11,970	-	-	11,970	24,990	
1936		180	-	-	680	-	-	860	-	-	860	25,850	
1937					47,045	-	-	47,045	-	-	47,045	72,895	
1938					54,388			54,388			54,388	127,283	
1939					31,352	12	-	31,364	12	-	31,364	158,647	
Totals	200,000	21,045	-	-	133,465	12	-	154,510	12	-	154,522	158,647	45,490
Virginia to 1933 incl.		4,503	1,014					4,503	1,014	-	5,522	5,522	
1933		9,301	1,380					9,301	1,380		10,681	16,203	
1934		3,562	3,586					3,562	3,586		7,148	23,351	
1935		6,912						6,912			6,912	30,263	
1936		292			15,604	1,391		15,896	1,391		17,287	47,550	
1937					25,998	12,010	3,380	25,998	12,010	3,380	41,388	88,938	
1938					29,762	2,956	2,700	29,762	2,956	2,700	35,418	124,356	
1939					13,752	6,961		13,752	6,961		20,713	145,069	
Totals	125,000	24,575	5,980		85,116	23,318	6,080	109,691	25,298	6,080	140,069	145,069	15,309
West Virginia 1933		606						606			606	606	
1934		1,569	435					1,569	435		2,004	2,610	
1935		6,931						6,931			6,931	9,541	
1936		12,396	447		5,090			17,486	447		17,933	27,474	
1937		8,151	496		42,461	2,756		50,612	3,252		53,864	81,338	
1938		459			9,389			9,848			9,848	91,186	
1939					24,033	7,641		24,033	7,641		31,674	122,860	
Totals	130,000	[illegible]	1,378		80,973	10,397		111,085	11,775		122,860	122,860	18,915

BLISTER RUST CONTROL WORK
PERFORMED ON NATIONAL FOREST LANDS - SOUTHERN APPALACHIAN STATES
1 9 3 9
(Continued)

State	Acreage Nat'l. Forest Land in Control Area	Acreage Eradicated of Ribes					
		By Forest Service			By Bureau		
		Working					
W. Virginia		First	Second	Third	First	Second	Third
GRAND TOTAL	1,044,265	143,659	39,219	-	806,799	145,985	6,082

Total Acreage Eradicated of Ribes by both Agencies			Total Acreage Worked in 1939, 1st 2nd & 3rd	Accumulative Total of 1st Working thru 1939	Estimated Unworked Acreage
Working					
First	Second	Third			
GRAND TOTAL					
950,458 (3)	185,204	6,082	1,141,744	950,458	93,807

(3) This grand total of 950,458 is the sum of initial work through 1938 - 827,276 plus work in 1939 - 95,409
Plus initial work in Cumberland Nat'l. Forest in 1934 never before estimated, since work was done before boundaries were established and land purchases made ----------27,773
Total 950,458

Estimated Acreage Control Area

In National Forests

Showing Where Increases were made

S T A T E	1938	1939	Increase in 1939	Acreage Worked Initially by end of 1939
Georgia	350,000 A	375,000 A	25,000 A	363,221 A (1)
Kentucky	0	30,565	30,565 (2)	30,565
North Carolina	180,000	180,000	0	177,686
South Carolina	3,700	3,700	0	3,700
Tennessee	130,000	200,000	70,000	154,510 (1)
Virginia	100,000	125,000	25,000	109,691 (1)
West Virginia	90,000	130,000	40,000	111,085 (1)
	853,700	1,044,265	230,565	950,458

(1) Acreage worked initially by end of 1939 exceeds estimated control area in National Forests at end of 1938.

(2) Acreage never before esitmated.

BLISTER RUST CONTROL WORK PERFORMED ON NATIONAL PARK LANDS
SOUTHERN APPALACHIAN STATES 1939

STATE	Acreage National Park Land in Control Area	Acreage Eradicated of Ribes by Park Service			Acreage Eradicated of Ribes by Bureau			Total Acreage Eradicated of Ribes by Both Agencies			Total Acr'g worked in 1939, 1st 2nd and 3rd working/	Accumulative Total of first working since 1938
		First Working	Second Working	Third Working	First Working	Second Working	Third Working	First Working	Second Working	Third Working		
North Carolina												
Great Smoky	16,649	354				11,933		354	11,933 (1)		12,287	14,639
Tennessee												
Great Smoky	3,000											1,825
Virginia												
Shenandoah	26,047			1,432	7			7		1,432	1,439	26,047
Total all National Parks	45,696	354		1,432	7	11,933		361	11,933	1,432	13,726	42,511

(1) This includes 125 acres reworked in Blue Ridge Parkway in Avery County, North Carolina

BLISTER RUST CONTROL WORK - RIBES ERADICATION 1918-1939 Inclusive

STATE	Acreage of White pine	Calendar Year	Acreage Worked by Park Service		Acreage Worked by Bureau		Total Acr'g worked by both Agencies,		Accumulative Total		Total Acr'g Worked by Years 1st, 2nd and 3rd wk'ng
			First Working	Second and Third Wk'ng	First Working	Second and third working	First	Second & third	1st working	2nd & 3rd	
North Carolina	9,000	1933	2,010				2,010		2010		2,010
		1937			12,275	2,010	12,275	2,010	14285	2010	14,285
		1939	354			11,033(1)	354	11,933	14639	13943	12,287
Totals			2,364		12,275	13,943	14,639	13,943	14639	13943	28,582
Tennessee	2,000	1933	1,825				1,825		1825		1,825
Totals			1,825				1,825		1825		1,825
Virginia	15,550	1933	3,958				3,958		3958		3,958
		1934	6,866	83			6,866	83	10824	83	6,949
		1935	12,460	251			12,460	251	23284	334	12,711
		1936	1,741	959	400	269	2,141	1,228	25425	1,562	3,369
		1937	130		485		615		26040	1,562	615
		1938		720		2		722	26040	2,284	722
		1939		1,432	7		7	1,432	26047	3,716	1,439
Totals			25,155	3,445	892	271	26,047	3,716	26047	3,716	29,763
GRAND TOTALS	26,590		25,344	3,445	13,167	14,214	42,511	17,659	42511	18,659	60,170

CURRANT STATUS OF BLISTER RUST XXXXXX PROJECT
In National Parks as of December
31, 1939

Column 1	Column 2	Column 3	NUMBER OF ACRES Column 4	Column 5	Column 6
National Park and State	White Pine Occurrence	Control Units	Amount Worked Initially	Not Worked	Amount Reworked
Shenandoah Virginia	15,590	26,047	26,047	-	3,716
Great Smoky Mts. North Carolina	9,000(1)	16,649	14,639	2,010 est.	13,943
Great Smoky Mts. Tennessee	2,000	3,000 est	1,825	1,175 est.	-
Subtotal for Great Smoky Mts.	11,000(2)	19,649 est.	16,464	3,185	13,943
Grand Total both Parks	26,590	45,696	42,511	3,185	17,659

(1) Of this 9,000 acres 7,930 acres of pine are in Cataloochee Creek, 2,675 acres averaging 50 trees and over per acre, and 5,255 acres averaging less than 50 trees per acre, according to Mr. Teague's Annual Report of 1937 - page 21. This acreage includes estimated acreage in Blue Ridge Parkway and in Great Smoky Park outside of Cataloochee Creek, as well as in Cataloochee Creek.

(2) In last year's Annual Report; figure of 16,565 was used. This should have been control area.

COMPARISON OF PRODUCTION IN RIBES ERADICATION IN THE SOUTHERN APPALACHIAN STATES IN 1939

All Programs

State	Number Ribes Destroyed	Acreage Worked	Number 8 hour man-days	Productivity Rating (1)
Delaware	1,365	2,946	88	8.11
Georgia	419,024	93,120	2,574	92.02
Maryland	189,208	8,043	2,138	5.20
N. Carolina	232,170	86,522	5,232	11.46
Tennessee	747,239	131,499	10,261	14.56
Virginia	693,737	68,394	8,701	9.79
West Virginia	948,100	96,854	5,224	52.57

(1) The figure for productivity is the product of the number of Ribes per man-hours by the number of acres worked per man-hour, The formula might be stated mathematically as follows:

$$\frac{\text{No. Ribes pulled}}{\text{No. Man Hours}} = \frac{R}{H} \qquad \frac{\text{Acres Worked}}{\text{No. Man Hours}} = \frac{A}{H}$$

$$\text{Productivity} = P \qquad P = \frac{R}{H} \times \frac{A}{H} = \frac{RA}{H^2}$$

Discussion of merits of above.

Where there is a great acreage which is ribes-free as in Georgia, worked with a minimum number of man-hours we get a high productivity rating. It is not, therefore, entirely fair to compare the productivity of one State with that of another without going into causes of either high or low figures and without knowing the extent of ribes-free areas.

The value of comparing ratings of one state with another lies in the stimulus given to the State Leader to analyze his crew work. Faulty crew work will be almost instantly recognized where the State Leader makes a monthly analysis of the ratings of each agent where the agents are working territory offering the same type of control conditions.

Factors which tend to depress the Productivity include among others:

1. Distance men have to walk from the trucks to reach eradication area. The longer the walk the less control hours pulling bushes, although, the full time is charged as number of man-hours.

See Corrected copy.

COMPARISON OF PRODUCTION IN RIBES ERADICATION
IN THE SOUTHERN APPALACHIAN STATES IN 1939
BETWEEN VARIOUS PROJECTS

All Programs

State	Number Ribes Destroyed	Acreage Worked	Number 8 hour man-days	Productivity Rating (1)
Delaware	1,365	2,946	88	8.11
Georgia	419,024	93,120	2,574	92.02
Maryland	189,208	8,043	2,138	5.20
N. Carolina	232,170	86,522	5,232	11.46
Tennessee	131,499	747,239	10,261	14.56
Virginia	68,394	693,737	8,701	9.79
West Virginia	96,854	948,100	5,224	52,57

(1) The figure for productivity is the product of the number of Ribes per man-hours by the number of acres worked per man-hour. The formula might be stated mathematically as follows:

$\frac{\text{No. Ribes pulled}}{\text{No. Man Hours}} = \frac{R}{H}$ $\frac{\text{Acres Worked}}{\text{No. Man Hours}} = \frac{A}{H}$

Productivity = P $P = \frac{R}{H} \times \frac{A}{H} = \frac{RA}{H^2}$

Discussion of merits of above.

Where there is a great acreage which is Ribes-free as in Georgia, worked with a minimum number of man-hours we get a high productivity rating. It is not, therefore, entirely fair to compare the productivity of one state with that of another without going into causes of either high or low figures and without knowing the extent of Ribes-free areas.

The value of comparing ratings of one state with another lies in the stimulus given to the State Leader to analyze his own crew work. Faulty crew work will be almost instantly recognized where the State Leader makes a monthly analysis of the ratings of each agent where the agents are working territory offering the same type of control conditions.

Factors which tend to depress the Productivity include among others:

1. Distance men have to walk from the trucks to reach eradication area. The longer the walk the less control hours pulling bushes, although, the full time is charged as number of man-hours.

2. If the working is the 2nd, 3rd, or 4th there will be less productivity than if the working is initial.

3. The more rugged the land the lower will be productivity. At the extreme, cliff work requires a great many hours of work for the number of bushes pulled.

4. The heavier the undergrowth the more time is necessary for scouting for bushes, hence the fewer bushes per man hour.

5. The larger the crew above five men and a foreman, the less productivity usually.

6. The closer the spacing, the less acreage per man hour, although the number of ribes per man hour may be the same.

COMPARISON OF PRODUCTION IN RIBES ERADICATION IN THE SOUTHERN APPALACHIAN STATES IN 1939 BETWEEN THE VARIOUS PROJECTS

State	Number Ribes Destroyed	Acreage Worked	Number 8 hour man-days	Productivity Rating
WPA				
Delaware	1,323	2,939	88	7.84
Georgia	419,024	93,120	2,574	92.02
Maryland	164,981	5,963	1,601	5.99
North Carolina*	183,425	85,980	4,321	12.82
Tennessee	747,239	110,381	9,536	14.17
Virginia*	663,100	40,739	8,348	6.05
West Virginia	859,519	77,701	3,727	75.12

*These figures for North Carolina and Virginia are for the combined Federal and State WPA projects. Figures for all other States are for Federal WPA only.

Federal WPA				
North Carolina	152,760	55,543	2,439	22.2
Virginia	533,771	34,275	5,102	11.0
State WPA				
North Carolina	30,665	30,437	1,381	4.13
Virginia	129,329	6,461	3,246	1.24
C.C.C.				
Maryland	23,616	2,080	537	2.66
North Carolina	43,155	354	895	.33
Virginia	29,431	27,612	312	130.44
West Virginia	88,581	19,153	1,497	11.84

Comparison of Productivity Rating for Federal WPA
Projects for the Calendar Years 1937, 1938 and 1939

S T A T E	1937	1938	1939
Georgia	26.1	38.8	92.02
Maryland	12.86	5.08	5.99
North Carolina	54.2	44.0	22.2
Tennessee	32.95	28.7	14.17
Virginia	16.12	8.4	11.0
West Virginia	32.30	48.04	75.12

Analysis of the above figures shows that in only two states, Georgia and West Virginia, has the productivity increased in the last three years. In other states there has been a marked decline owing probably to various factors. The increase in Georgia is probably attributed to the amount of "blockout" acreage, that is areas without ribes. The increase in West Virginia I attribute largely to Dr. Ashcroft's monthly analysis of the production of his agents and an increasing betterment of crew organization. Some of the increase in West Virginia may, however, be attributed to the amount of "block-out" but this is relatively small.

SUMMARY OF RIBES ERADICATION IN 1939
By Working, Project and Ownership

DELAWARE

TABLE 1

Classification	Acreage Worked	Number of Ribes Destroyed			Number 8 hour man-days
		Wild	Cultivated	Total	
By Working					
Initial Work	2,946	3	1,362	1,365	88
Rework	None				
Total	2,946	3	1,362	1,365	88
By Project					
Regular	7	1	41	42	
W. P. A.	2,939	2	1,321	1,323	88
Total	2,946	3	1,362	1,365	88
By Ownership					
Federal	None				
State	309				6
Municipal in '39	none				
Private	2,637	3	1,362	1,365	82
Total	2,946	3	1,362	1,365	88

Classification	Total Cost	Number Acres Per man-days	Per Acre		
			Number Ribes	Number Man-days	Cost
By Working					
Initial Work	$704.92	33	0.46	0.03	$0.24
Rework	None				
Total	704.92	33	0.46	0.03	0.24
By Project					
Regular					(1)
W.P. A.	704,92	33			0.24
Total	704.92	33	0.46	0.03	0.24
By Ownership					
Federal	None				
State	48.00	51.5		0.019	0.155
Municipal	"				
Private	656.92	32.1	0.5	0.037	0.249
Total	704.92	33	0.46	0.03	0.24

(1) Work by owners, cost unknown



Delaware. White Pines such as these on a Du Pont estate near Wilmington represent a conservative valuation of $200.000.

Md. Roll 53. No. 1

photo by H. E. Yost

SUMMARY OF RIBES ERADICATION BY WORKING, PROJECT, OWNERSHIP AND YEAR
1938-1939 Inclusive

TABLE 2 DELAWARE

Classification	Year	Acreage Worked	Number of Ribes Destroyed: Wild	Cultivated	Total	Number of 8 hour Man-days	Total Cost	Mn. Acres Per Man-days	Per Acre: Number Ribes	Number Man-days	Cost
By Working											
First	1938	1,076		638	638	43.0	$294.92	25.0	0.593	0.0399	$0.273
	1939	2,946	3	1,362	1,365	88.0	704.92	33.0	0.46	0.03	0.24
Rework in 1938-1939	None										
Total (All First)		4,022	3	2,000	2,003	131.0	999.84	31.0	0.50	0.033	0.248
By Project											
Regular	1938			32	32						
	1939	7	1	41	42	Unknown	(1)		6.0		
Total		7	1	73	74	(1) Working owner - Cost unknown					
W. P. A.	1938	1,076		606	606	43.0	294.92	25.0	0.56	0.040	0.274
	1939	2,939	2	1,321	1,323	88.0	704.92	33.0	0.45	0.029	0.24
Total		4,015	2	1,927	1,929	131.0	999.84	31.0	0.48	0.033	0.249
Total All Programs		4,022	3	2,000	2,003	131.0	999.84	31.0	0.50	0.033	0.248
By Ownership											
Federal	1938-'39	None									
Municipal	1938	570		40	40	6.0	41.10	95.0	0.07	0.01	0.072
	1939	None									
Total		570		40	40	6.0	41.10	95.0	0.07	0.01	0.072
Private	1938	506		598	598	37.0	253.82	13.7	1.18	0.073	0.501
	1939	2,637	3	1,362	1,365	82.0	656.92	32.1	0.5	0.031	0.249
Total		3,143	3	1,960	1,963	119.0	[illegible]	26.4	0.62	0.038	0.280
State	None in 1938										
	1939	309				6.0	48.00	51.5		0.019	0.155
Total		309				6.0	48.00	51.5		0.019	0.155
GRAND TOTAL (OWNERSHIP)		4,022	3	2,000	2,003	131.0	999.84	31.0	0.50	0.033	0.248
BY YEAR	1938	1,076		638	638	43.0	294.92	25.0	0.593	0.039	0.273
	1939	2,946	3	1,362	1,365	88.0	704.92	33.0	0.46	0.03	0.24
Total (All Years)		4,022	3	2,000	2,003	131.0	999.84	31.0	0.50	0.033	0.248

STATE OF [illegible] IDLE [illegible]
BY [illegible], F.S.U. AND [illegible]

STATE GEORGIA

Classification	Acreage Worked	No. of Miles Destroyed Wild	Cult.	Total	Number 8 hour man-days	Total Cost	Number Acres per man-day	Per Acre Number Miles	Number Man-days	Cost
By Working Initial	93,120	419,024	-	419,024	2,574	5,464.64	36.22	[illegible]	0.028	0.059
Re-work	None									
Total	93,120	419,024	-	419,024	2,574	5,464.64	36.22	[illegible]	0.028	0.059
By Project Chapter [illegible]	None 93,120 None	419,024	-	419,024	2,574	5,464.64	36.22	[illegible]	0.028	0.059
Total	93,120	419,024	-	419,024	2,574	5,464.64	36.22	[illegible]	0.028	0.059
By Ownership [illegible]	23,480	301,520	-	301,520	1,770	3,752.12	13.26	[illegible]	0.075	0.160
[illegible]	2,860	25,586	-	25,586	181	385.53	15.80	[illegible]	0.053	0.135
[illegible]	66,780	91,918	0	91,918	623	1,326.99	107.10	[illegible]	0.009	0.02
Total	93,120	419,024	-	419,024	2,574	5,464.64	36.22	[illegible]	0.028	0.059

TABLE II GEORGIA SUMMARY OF RIBES ERADICATION BY WORKING PROJECT AND YEAR 1933-1939 Inclusive
(Data for years 1933 to 1938 inclusive and combined)

Classification	Year	Acrea	No. of Ribes Destroyed			No. Man-Days labor	Total Cost	No. Acres per Man-Days	Per Acre		
			Wild	Cult.	Total				No. Ribes	No. Man-Days	Cost
Initial Working	1933-'38	575,066	4,546,543	215,179	4,761,722	[illegible]	40,007.81	31.2	8.28	0.032	0.069
	1939	93,120	419,024	-	419,024	[illegible]	5,464.64	36.2	4.18	0.028	0.059
Totals		668,186	4,965,567	215,179	5,180,746	[illegible]	45,472.45	33.2	7.76	0.031	0.068
Rework	1935-'38	12,430	310,485	659	311,144	[illegible]	4,907.20	4.5	25.10	2.23	0.395
	1939	None									
Totals		12,430	310,485	659	311,144	[illegible]	4,907.20	4.5	25.10	2.23	0.395
Grand Total Initial and Re-work		680,616	5,276,052	215,838	5,491,890	[illegible]	50,379.65	28.9	8.10	0.035	0.074
Project											
WPA	1935-'38	396,308	4,852,877	194,736	5,047,613	[illegible]	38,143.49	18.9	12.73	0.055	0.096
	1939	93,120	419,024	-	419,024	[illegible]	5,464.64	36.2	4.18	0.028	0.059
Totals		489,428	5,271,901	194,736	5,466,637	[illegible]	43,608.13	21.7	11.16	0.047	0.089
CCC	1933-'34	15,493	-	235	235	[illegible]	281.66	303.0	0.015	0.003	0.018
PWA	1934-'35	175,695	4,151	20,867	25,018	[illegible]	6,489.86	240.0	0.142	0.004	0.036
GRAND TOTAL ALL PROJECTS		680,616	5,276,052	215,838	5,491,890	[illegible]	50,379.65	28.9	8.10	0.035	0.074

See 1938 report for breakdown from 1933 - 1938 inclusive

TABLE 3 GEORGIA SUMMARY OF RIBES ERADICATION BY OWNERSHIP AND BY YEAR from 1933 to 1939 Incl.

Ownership	Year	Acres	No. Ribes Destroyed			Total man-days labor	Total Cost	Per Acre		
			Wild	Cult.	Total			No. Ribes	No. Man-days	Cost
Nat'l. Forests	1933	8,112					147.90	-	-	0.018
Chattahoochee	1934	6,642		235	235		119.01	0.035	-	0.018
	1935	125,976	736,585	1,321	737,906		7,308.00	5.86	0.016	0.058
	1936	73,655	1,542,896	25,690	1,568,586		6,154.00	21.3	0.045	0.083
	1937	50,631	996,774	42,305	1,039,079		7,366.14	20.5	0.10	0.14
	1938	75,975	530,145	45,100	575,245		7,454.16	7.5	0.056	0.098
	1939	23,480	301,520	-	301,520		3,752.12	12.8	0.075	0.160
Totals		364,471	4,107,920	114,651	4,222,571		32,301.33	11.6	0.046	0.089
State	1935	125	11,337	-	11,337		76.88	90.7	0.248	0.615
	1936	None								
	1937	25	3,110	-	3,110		32.13	124.4	0.84	1.285
	1938	2,318	75,840	-	75,840		520.20	32.7	0.129	0.224
	1939	2,860	25,586	-	25,586		385.53	9.0	0.053	0.135
Totals		5,328	115,873	-	115,873		1,014.74	21.7	0.09	0.190
Private	1933	739	-		-		14.75	-	-	0.0195
	1934	126,720	-	12,509	12,509	57	3,788.36	0.099	0.0036	0.031
	1935	46,996	84,271	15,756	100,027		2,920.40	2.13	0.025	0.062
	1936	35,450	221,409	20,881	242,290		2,896.04	6.82	0.0085	0.082
	1937	14,000	400,950	43,355	444,305		3,639.87	31.7	0.177	0.26
	1938	20,132	253,711	8,686	262,397		2,477.11	13.0	0.071	0.123
	1939	66,780	91,918	-	91,918		1,326.99	1.38	0.009	0.02
Totals		310,817	1,052,259	101,187	1,153,446		17,063.52	3.72	0.021	0.055
GRAND TOTAL ALL LANDS		680,616	5,276,052	215,838	5,491,890		50,379.59	8.10	0.035	0.074

Table 4 GEORGIA SUMMARY OF RIBES ERADICATION BY [illegible] PROJECT, [illegible] NERSHIP AND YEAR - from 1933 [illegible] nclusive

Classification	Acres Worked	No. Ribes Destroyed Wild	Cult.	Total	No. 8 hour M-Days	Total [illegible]	No. Acres per M-Day	Per Acre No. Ribes	No. Man-Days	Cost
By Working										
First	668,186	4,965,567	215,179	5,180,746	20,804	[illegible] 65	32.2	7.76	0.031	0.068
Second	12,430	310,485	659	311,144	2,762	[illegible] 20	4.5	25.10	2.230	0.395
Total	680,616	5,276,052	215,838	5,491,890	23,566	50,37[illegible] 35	28.9	8.10	0.035	0.074
By Project										
WPA	488,826	5,271,901	194,736	5,466,637	22,782	4[illegible] 65	21.7	11.16	0.047	0.08[illegible]
CCC	15,493	-	235	235	51	28[illegible] 6	303.0	0.015	0.003	0.018
PWA	175,695	4,151	20,867	25,018	733	6,[illegible] 63	240.0	0.142	0.004	0.036
Total	680,616	5,276,052	215,838	5,491,890	23,566	[illegible] 30	28.9	8.10	0.035	0.07[illegible]
By Ownership										
Federal	384,471	4,107,920	114,651	4,222,571	16,571	3[illegible] 53	23.0	11.60	0.046	0.0[illegible]9
State	5,328	115,873	-	115,873	532	1,0[illegible] 74	10.0	21.70	0.090	0.1[illegible]0
Private	310,817	1,052,259	101,187	1,153,446	6,463	17,[illegible] 52	48.1	3.72	0.021	0.0[illegible]5
Total	680,616	5,276,052	215,838	5,491,890	23,566	50,[illegible] 39	28.9	8.10	0.035	0.074
By Year										
1933	6,651	-	-	-	40	1[illegible] 65	221.3	-	0.004	0.0[illegible]8
1934	155,362	-	12,744	12,744	408	3,[illegible] 87	285.0	0.096	0.0035	0.0[illegible]9
1935	175,097	832,193	17,077	849,270	3,237	10,[illegible] 23	53.7	4.9	0.018	0.059
1936	109,105	1,764,305	46,571	1,810,876	3,650	[illegible],000 04	29.9	16.6	0.033	0.0[illegible]3
1937	54,656	1,400,834	85,660	1,486,494	7,590	11,[illegible] 14	8.52	22.9	0.12	0.1[illegible]
1938	86,825	859,696	53,786	913,482	6,007	10,[illegible] 47	16.37	9.28	0.061	0.1[illegible]4
1939	93,120	419,024	-	419,024	2,574	5,[illegible] 64	36.22	4.50	0.028	0.0[illegible]9
Totals	680,616	5,276,052	215,838	5,491,890	23,566	501,[illegible]59	28.9	8.10	0.035	0.074

SUMMARY OF RIBES ERADICATION IN 1939 BY WORKING, PROJECT AND OWNERSHIP

KENTUCKY

TABLE 1

Classification	Acreage Worked	Number of Ribes Destroyed			Number 8 hour man-days	Total Cost	Number Acres per Man-Days	Per Acre		
		Wild	Culti.	Total				Number Ribes	Number Man-days	Cost
By Working										
Initial Work	2,948	0	0	0	(1)	(1)	-	0		
Rework	780	1	7	8	(1)		-	0.01		
Total	3,728	1	7	8	(1)	(1)	-	-	(1)	(1)
By Project										
Regular	3,728	1	7	8	(1)					
W. P. A.	None									
Total	3,728	1	7	8	(1)	(1)			(1)	(1)
By Ownership										
Federal	3,029	1		1	(1)	-	-	-		
Municipal	70	(Boy Scout Camp)		0					0	
Private	629		7	7	(1)				0.01	
Total	3,728	1	7	8	(1)	(1)	-	-		(1)

(1) Work carried on by Agent Ball, charged to supervision.

SUMMARY OF RIBES ERADICATION
1934 to 1939 By Working

TABLE 2 KENTUCKY

Years	Total Acreage White Pine	Acreage Initial Areas White Pine Plus Zones	Initial Working: Acreage Worked	Initial Working: No. Ribes Destroyed: Wild	Initial Working: No. Ribes Destroyed: Culti.	Initial Working: No. 8 hour man days labor	Re-working: Acreage Worked	Re-working: No. Ribes Destroyed: Wild	Re-working: No. Ribes Destroyed: Culti.	Re-working: No. 8 hour M-days	All Workings: Acreage Worked	All Workings: No. Ribes Destroyed: Wild	All Workings: No. Ribes Destroyed: Culti.	All Workings: No. Ribes Destroyed: Total	All Workings: No. 8 hour man-days
1934-1938	62,244	64,230	64,230	2,095	1,830	837					64,230	2,095	1830	3925	837
Est in 1939	62,417	67,178	2,948			(1)	780		7	(1)	3,728	1	7	8	(1)
Total			67,178	2,095	1,830	837	780		7		67,938	2,096	1837	3933	837

Summary of Eradication Work, By Programs, excluding Nursery Sanitation

Regular and Cooperative	Acreage Worked	No. Ribes Destroyed: Wild	Culti.	Total	No. 8 hour man-days	Cost
1934 to 1938	1,090				(2)	$
1939	3,728	1	7	8	(3)	(1)
Total	4,818	1	7	8	(3)	
W. P. A. 1934 to 1938	1,617				(1)	(1)
P. W. A. 1934 to 1935	61,523	2,095	1,830	3,925	837	4,345.24
Total Emergency Programs	63,140	2,095	1,830	3,925	837	(2)
Total all programs	67,958	2,096	1,837	3,933	837	(3)

SUMMARY OF ERADICATION BY YEARS

YEAR	Acreage Worked	No. of Ribes Destroyed: Wild	Culti.	Total	No. 8 hour man-days	Cost
1934	61,523	2,095	1,830	3,925	837	$4,345.24
1937	1,617				(2)	(1)
1938	1,090				(3)	(1)
1939	3,728	1	7	8	(3)	(1)
Total all years	67,958	2,096	1,837	3,933	837	4,345.24

(1) Work carried on by agent Ball, charged to supervision
(2) This total does not include 11 days spent by Agent Welch to supervision in 1937
(3) " " " " " 8 " " " R.G. Pierce in 1938 and 7 by Mr. Ball in 1939

SUMMARY OF RIBES ERADICATION IN 1939

By Working, Project and Ownership

TABLE 1 MARYLAND

Classification	Acreage Worked	Number of Ribes Destroyed			Number 8 hour man-days	Total Cost	Acres Per Man-days	Per Acre		
		Wild	Culti.	Total				NUMBER Ribes	LR Number Man-days	Cost
By Working										
Initial Work	974	95,767	2,247	[illegible]	550	[illegible]61	1.77	105	[illegible]	[illegible]1.50
Rework	7,069	90,979	215	91,194	1,598	[illegible]59	4.45	13.87	[illegible]	0.60
	8,043	186,746	2,462	189,208	2,138	[illegible]00	3.8	23.5	0.26	0.71
By Project										
Regular		481	130	611						
W. P. A.	5,963	162,875	2,106	164,981	1,601	[illegible]76	3.7	27.6	[illegible]	[illegible]
C. C. C.	2,080	23,390	226	25,616	537	[illegible].44	3.87	11.4	0.258	0.368
Total	8,043	186,746	2,462	189,208	2,138	[illegible].00	3.8	23.5	0.26	0.71
By Ownership										
Federal	278	[illegible],180	1,972	20,152	172	[illegible].05	1.6	72.4	0.62	[illegible].65
Private	4,863	135,485	207	135,692	1,331	[illegible].46	3.6	27.9	0.27	0.73
State	2,902	33,081	283	33,364	635	[illegible].49	4.6	11.5	0.22	0.58
Total	8,043	186,746	2,462	189,208	2,138	[illegible]05.00	3.8	23.5	[illegible]	[illegible]

SUMMARY OF RIBES ERADICATION IN MARYLAND
From 1933 to 1939 Inclusive

Table 2

Classification	Year	Acreage Worked	Number of Ribes Destroyed			Total 8 hour man-days labor	Total Cost	Per Acre		
			Wild	Cultivated and escaped	Total			No. of Ribes	Man-days	Cost
INITIAL WORKING	1932	800		1	1		$ 26.35	.001		$0.033
	1933	1,890	187,465	5	187,470	316	1,684.95	99.04	0.17	0.89
	1934	106,695	927,189	1,062	928,251	2,442	8,219.05	8.71	0.023	0.077
	1935	24,259	511,849	- 482	512,331	2,112	5,622.07	21.04	0.087	0.232
	1936	22,281	511,600	881	512,481	2,681	7,653.65	23.0	0.12	0.344
	1937	12,165	287,283	492	287,775	1,780	5,610.87	23.6	0.15	0.46
	1938	3,389	301,774	137	301,911	1,636	4,031.09	89.0	0.48	1.19
	1939	974	95,767	2,247	98,014	550	1,467.61	100.8	0.56	1.50
Total		172,453	2,822,927	5,307	2,828,234	11,517	34,315.64	16.4	0.06	0.199
SECOND WORKING	1934	469	37,886		37,886	56	204.73	80.7	0.119	0.436
	1935	18,603	185,704	1,422	187,126	1,588	4,484.18	10.0	0.085	0.241
	1936	1,899	21,908	92	22,000	434	1,000.00	11.6	0.228	0.52
	1937	4,158	60,005	181	60,186	814	2,460.00	14.4	0.194	0.59
	1938	817	91,588	10	91,598	504	1,416.70	112.0	.63	1.73
	1939	1,841	76,626	85	76,711	865	2,308.02	41.6	0.46	1.25
Total		27,787	473,717	1,795	475,507	4,261	11,873.63	17.1	0.15	0.427
THIRD WORKING	1936	5,988	10,478	323	10,801	498	1,300.00	1.8	0.08	0.22
	1937	3,234	41,281	82	41,363	447	1,374.00	12.8	0.138	0.42
	1938	340	8,665	-	8,665	124	348.40	25.0	0.36	1.02
Total		9,562	60,424	405	60,829	1,069	3,022.40	6.3	0.11	0.316
FOURTH WORKING	1938	2,420	3,904	7	3,911	217	271.00	1.6	0.89	0.11
	1939	4,510	12,188	130	12,318	603	1,606.33	2.73	0.13	0.35
Total		6,930	16,092	137	16,229	820	1,877.33	2.43	0.18	0.27
FIFTH WORKING	1939	718	2,165		2,165	120	323.04	3.01	0.16	0.45
Grand Total		217,450	3,375,325	7,639	3,382,964	17,787	51,412.04	44.9	0.078	0.226
Subtotal Reeradication		44,997	552,398	2,332	554,730	6,270	$17,096.40	12.35	0.14	0.38

SUMMARY OF RIBES ERADICATION IN [illegible]
By Project and Year, 1932 to 1939 Inclusive

Table 3

Classification	Year	Acres Worked	Number of Ribes Destroyed Cultivated Wild	Cultivated and Escaped	Total	Man-days labor	Total Cost	Per Acre Number Ribes	Per Acre No. Man-Days	Per Acre Cost	Acres Per Man-days
Project											
Regular and Cooperative	1932	800		1	1		$ 26.35	.001		$ .033	
	1937						158.50				
	1938	560	68	18	116	3	2.25	0.12	.002	.0023	480.00
	1939		481	150	631						
Sub-total		1,780	549	179	728	2	187.10	0.41		.105	
E. R. A.	1936	185	74,000		74,000	145	323.14	400.0	0.80	1.75	1.24
	1937	465	84,161		84,161	208	733.20	185.0	0.48	1.58	2.08
Sub-Total		650	158,161		158,161	373	1,056.34	243.3	0.57	1.62	1.75
combined Regular and E.R.A.		2,430	158,710	179	158,889	375	1,243.44				
W. P. A.	1935	18,467	308,669	480	309,115	1,470	5,196.36	16.7	0.096	0.28	10.44
	1936	29,801	459,221	1,296	460,517	3,246	9,512.51	14.7	0.112	0.32	8.91
	1937	19,092	304,408	755	305,163	2,818	8,553.17	16.0	0.147	0.45	6.77
	1938	3,094	360,637	106	360,443	1,001	5,339.94	123.0	0.614	1.72	1.62
	1939	5,963	162,875	2,106	164,981	1,501	4,274.56	27.6	0.268	0.716	3.7
Total		76,437	1,595,550	4,693	1,600,223	13,496	132,876.54	20.9	0.15	0.43	6.68
C.C.C. and E.C.W.	1934	260	76,051	0	76,051	296	292.00	292.0	1.12	1.12	0.88
	1935	5,735	274,503	12	274,515	863	863.00	47.9	0.15	0.15	6.63
	1936	182	30,705		30,705	118	118.00	169.0	0.65	0.65	1.54
	1938	2,892	25,326		25,326	576	725.00	8.9	0.20	0.25	5.00
	1939	2,020	23,390	226	23,616	537	1,430.44	11.4	0.259	0.689	3.87
Total		11,147	430,335	238	430,473	2,305	3,428.44	38.7	0.215	0.308	4.66
P. W. A.	1933	1,890	187,465	5	187,470	316	1,684.95	99.04	0.17	0.89	5.98
	1934	106,904	869,024	1,062	890,086	2,206	8,131.78	8.3	0.02	0.076	48.46
	1935	18,642	114,361	1 462	115,823	1,067	4,046.89	6.2	0.057	0.22	17.45
Total		127,436	1190.850	2,528	1193.379	3,589	13,863.62	9.3	0.03	0.10	35.5
GRAND TOTAL		217,450	3375,325	7,639	3382,964	19,787	51,412.04	44.9	0.078	0.226	12.25

SUMMARY OF RIBES ERADICATION IN [illegible]YLAND

By Years and Ownership 1932 to 193[illegible] clusive

Table 4

Classification	Year	Acres Worked	Number of Ribes Destroyed			Total Man-days labor	Total Cost	Acres Per man-days	Per Acre		
			Wild	Cultivated and escaped	Total				Number Ribes	Number Man-days	Cost
YEAR	1932	800		1	1		$ 26.35		0.001		$0.033
	1933	1,890	187,465	5	187,470	31[illegible]	1,684.95	5.98	99.04	0.17	0.89
	1934	107,164	965,075	1,062	966,137	2,4[illegible]	8,423.78	42.9	9.01	0.02	0.079
	1935	42,862	697,553	1,904	699,457	[illegible]	10,106.25	[illegible]	16.31	0.09	0.235
	1936	30,168	543,986	1,296	545,282	3,6[illegible]	9,953.65	8.3	18.07	0.11	0.33
	1937	19,557	388,569	755	389,324	3,0[illegible]	9,444.87	6.4	19.9	0.155	0.48
	1938	6,966	405,931	154	[illegible]06,085	2,[illegible]	6,067.19	2.79	58.3	0.356	0.87
	1939	8,043	186,746	2,462	189,208	2,1[illegible]	5,705.00	3.8	23.5	0.26	0.71
Total		217,450	3,375,325	7,639	3,[illegible]82,964	17,[illegible]	51,412.04	12.25	44.9	0.078	0.226
OWNERSHIP											
Federal	1936-1938	1,155	214,511		214,511	[illegible]	1,921.99	1.8	185.0	0.55	1.66
	1939	278	18,180	1,972	20,152	1[illegible]	459.05	1.6	72.4	0.62	1.65
Total		1,433	232,691	1,972	234,663	[illegible]	2,381.04	[illegible]	163.5	0.57	1.66
Private	1932-1938	165,875	2,220,609	4,556	2,225,165	10,[illegible]	30,713.61	15.8	13.0	0.06	0.18
	1939	4,863	135,485	207	135,692	1,3[illegible]	3,551.46	3.6	27.9	0.27	0.73
Total		170,738	2,356,094	4,763	2,360,857	11,71[illegible]	[illegible],265.07	14.6	13.8	0.07	0.20
State	1932-1938	30,737	753,459	83	753,542	4,6[illegible]	13,035.49	6.7	24.0	0.15	0.43
	1939	2,902	33,081	283	33,364	63[illegible]	1,694.49	[illegible].6	11.5	0.22	0.58
Total		33,639	786,540	366	786,906	5,24[illegible]	14,729.90	6.4	23.4	0.16	0.44
Municipal	1932-1938	11,640		538	538	8	35.95	1450.0	0.04	-	0.003
	1939	None									
Total		11,640		538	538	8	35.95	1450.0	0.04		0.003
GRAND TOTAL		217,450	3,375,325	7,639	3,382,964	17,787	$51,412.04	12.25	44.9	0.078	0.226

SUMMARY OF RIBES ERADICATION IN 1939

By Working, Project and Ownership

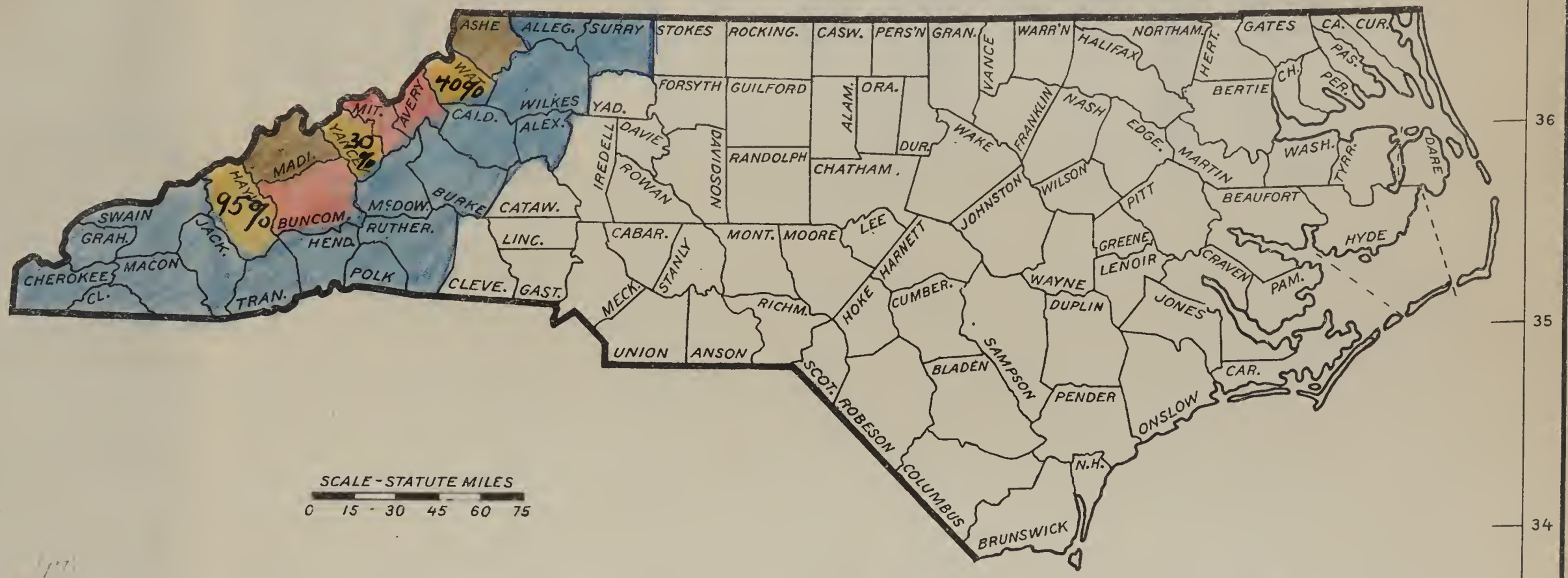
Table 1 NORTH CAROLINA

Classification	Acreage Worked	Number of Ribes Destroyed			Number 8 hour man-days	Total Cost	Number Acres per man-days	Per Acre		
		Wild	Cultivated	Total				Number Ribes	Number man-days	Cost
By Working										
Initial Work	354	48,069	86	48,155	895	$ 1,023.64	0.39	136.	2.53	$5.42
Rework	86,168	181,886	2,129	184,015	4,339	[illegible] 78	19.7	2.10	0.05	0.11
Total	86,522	229,955	2,215	232,170	5,234	[illegible].42	16.3	2.68	0.06	0.13
By Project										
Regular	188	491	99	590	18	[illegible].57	11.05	3.14	0.09	0.72
W. P. A.	85,980	181,395	2,030	183,425	4,321	[illegible].81	19.9	2.13	0.05	0.109
C. C. C.	354	48,069	86	48,155	895	[illegible].64	0.39	136.	2.53	[illegible].42
Total	86,522	229,955	2,215	232,170	5,234	[illegible].42	16.3	2.68	0.06	0.13
By Ownership										
Fed.(Nat'l Forest	[illegible]	116,543	19	116,562	3,457	[illegible].06	12.2	2.77	0.08	0.16
(" Park	12,287	48,069	86	48,155	931	[illegible].64	13.2	3.92	0.07	0.16
State and Municipal	1	0	0	0	0	0.34				0.34
Private	32,134	65,343	2,110	67,453	846	[illegible]34.38		2.10	0.026	0.085
Total	86,522	229,955	2,215	232,170	5,234	$[illegible].42	16.3	2.68	0.06	0.13

NORTH CAROLINA, 1939

Status of white pine blister rust control work in North Carolina as of October 15, 1940.

By: H. B. Teague, Agent, Asheville, N. C. 10-15-40. (Revised 10-29-40)



Counties having no native Ribes in the white pine areas or within nine hundred feet of white pine.

Counties having native Ribes within 900 feet of white pine; grid survey completed.

Counties having native Ribes within 900 feet of white pine; grid survey begun, estimated % completed shown.

Counties having native Ribes within 900 feet of white pine; grid survey not yet begun.

U.S. DEPARTMENT OF AGRICULTURE

BUREAU OF AGRICULTURAL ECONOMICS

72.1

SUMMARY OF RIBES ERADICATION BY WORKING, PROJECT AND YEARS 1933-1939 INCLUSIVE

(DATA FOR YEARS 1933-1938 Inclusive are Combined)

Table 2 NORTH CAROLINA

Classification	Year	Acres	Number of Ribes Destroyed			Total Man-days labor	Total Cost	Number Acres Per Man-days	Per Acre		
			Wild	Cultivated	Total				Number Ribes	Number Man-days	Cost
INITIAL WORKING	1933-1938	2,484,480	781,025	583,990	1,365,015	30,[illegible]	$ 78,224.22	82.8	0.55	0.012	0.031
	1939	354	48,069	86	48,155	895	1,923.64	0.39	136.0	2.53	5.42
Total		2,484,834	829,094	584,076	1,413,170	30,[illegible]07	80,147.86	82.6	0.57	0.012	0.032
REWORK	1935-1938	630,106	60,917	75,455	136,372	7,043	20,779.62	89.6	0.22	0.011	0.032
	1939	86,168	181,886	2,129	184,015	4,339	9,495.78	19.7	2.10	0.05	0.11
Total		716,274	242,803	77,584	320,387	11,[illegible]82	30,275.40	63.0	0.45	0.016	0.042
GRAND TOTAL INITIAL & REWORK		3,201,108	1,071,897	661,660	1,733,357	42,289	110,423.26	76.0	0.54	0.013	0.035
PROJECT											
REGULAR	1936-1938	53,412	10,202	4,561	14,763	273	578.85	195.5	0.28	0.005	0.010
	1939	188	491	99	590	18	134.97	11.05	3.14	0.09	0.072
Total		53,600	10,693	4,660	15,553	291	713.82	184.0	0.29	0.005	0.013
W. P. A.	1935-1938	1,990,274	806,372	520,243	1,326,615	31,098	71,573.92	64.0	0.66	0.016	0.036
	1939	85,980	181,395	2,030	183,425	4,321	9,360.81	19.9	2.13	0.05	0.109
TOTAL		2,076,254	987,767	522,273	1,510,040	35,419	80,934.73	58.6	0.73	0.017	0.039
P. W. A. TOTAL	1934-1935	905,183	23,841	127,035	150,876	3,951	22,925.48	229.0	0.17	0.004	0.025
C. C. C.	1933-1937	165,717	1,527	7,606	9,133	1,733	3,925.59	95.6	0.05	0.015	0.023
	1939	354	48,069	86	48,155	895	1,923.64	0.39	136.0	2.53	5.42
Total		166,071	49,596	7,692	57,288	2,628	5,849.23	63.2	0.34	0.016	0.035
Total Emergency Programs		3,147,508	1,061,204	657,000	1,718,204	41,998	109,709.44	75.0	0.55	0.013	0.035
TOTAL ALL PROGRAMS		3,201,108	1,071,897	661,660	1,733,557	42,289	110,423.26	76.0	0.54	0.013	0.035

SUMMARY OF RIBES ERADICATION BY OWNERSHIP AND YEARS 1933 to 1939 Inclusive
(Data for 1933-1938 inclusive are combined)

TABLE 3 NORTH CAROLINA

Classification	Year	Acres	Number of Ribes Destroyed			Total Man-days labor	Total Cost	Number Acres Per man-days	Per Acre		
			Wild	Culti.	Total				Number Ribes	No. Man-days	Cost
Ownership											
Federal	1933-1938	277,795	222,365	12,642	235,007	5,130	$ 10,243.87	54.1	0.847	0.018	0.037
National Forest	1939	42,100	116,543	19	116,562	3,457	6,761.06	12.2	2.77	0.08	0.16
Total		319,895	338,908	12,661	351,569	8,587	17,004.93	37.3	1.10	0.027	0.053
Nat'l Park	1933-1938	16,295	4,042		4,042	275	993.71	59.2	0.25	0.017	0.061
	1939	12,287	48,069	86	48,155	931	1,923.64	13.2	3.92	0.07	0.16
Total		28,582	52,111	86	52,197	1,206	2,917.35	23.7	1.83	0.042	0.102
Indian Reservation	1938	100				1	0.74	100.		0.01	0.0074
Total Federal Lands		348,577	391,019	12,747	403,766	9,794	19,923.02	35.6	1.157	0.028	0.057
State and Municipal											
	1937-1938	255		226	226	6	15.95	42.5	0.89	0.023	0.062
	1939	1					0.34				0.34
Total		256		226	226	6	16.29	42.7	0.88	0.023	0.064
Private	1934-1938	2820,141	615,535	646,577	1,262,112	31,643	87,719.57	89.1	0.45	0.012	0.031
	1939	32,134	65,343	2,110	67,453	846	2,764.38	37.9	2.10	0.026	0.085
Total		2852,275	680,878	648,687	1,329,565	32,489	90,483.95	87.8	0.47	0.011	0.032
GRAND TOTAL ALL LANDS		3201,108	1071,897	661,660	1,733,557	42,289	110,423.26	76.0	0.54	0.013	0.035
Y E A R	1933	29,570	360		360	415	1,628.46	71.3	0.01	0.01	0.061
	1934	582,610	14,823	85,499	100,322	2,818	15,323.44	206.6	0.17	0.0048	0.026
	1935	588,360	147,954	113,108	261,062	8,031	23,167.83	73.2	0.44	0.0136	0.039
	1936	976,673	351,471	350,649	702,120	14,536	37,668.71	67.2	0.709	0.015	0.038
	1937	680,954	184,076	80,998	265,074	7,642	13,658.16	91.5	0.389	0.011	0.20
	1938	256,419	143,258	29,191	172,449	3,613	7,357.22	71.0	0.674	0.0191	0.288
	1939	86,522	229,955	2,215	232,170	5,234	11,419.42	16.3	2.66	0.06	0.13
Total		3201,108	1071,897	661,660	1733,557	42,289	110,423.26	76.0	0.54	0.013	0.035

See Table 4 for breakdown of ownership by years

SUMMARY OF RIBES ERADICATION BY OWNERSHIP AND YEARS 1933 to 1939 Inclusive

TABLE 4 NORTH CAROLINA

OWNERSHIP	Year	Acres Worked	Number of Ribes Destroyed			Total Man-days labor	Total Cost	Number Acres Per man-days	Per Acre		
			Wild	Cultivated	Total				Number Ribes	Number Man-days	Cost
Federal											
National Forest	1933	27,560	227		227	403	1,627.65	68.3	0.008	0.015	0.059
	1934	24,598	269		269	155	786.20	158.7	0.01	0.006	0.032
	1936	29,332	242	2,651	2,893	160	471.08	183.3	0.099	0.005	0.016
	1937	141,596	107,365	9,253	116,618	2,605	3,545.81	54.3	0.82	0.018	0.025
	1938	54,709	114,262	738	115,000	1,807	3,812.13	30.3	2.1	0.033	0.0695
	1939	42,100	116,543	19	116,562	3,457	9,761.06	12.2	2.77	0.03	0.16
Total		319,895	338,908	12,661	351,569	8,587	17,004.93	37.3	1.10	0.027	0.053
National Forest	1933	2,010	133		133	12	200.83	167.5	0.066	0.006	0.10
	1937	14,285	3,909		3,909	263	792.88	54.3	0.27	0.018	0.055
	1939	12,287	48,069	86	48,155	931	1,923.64	13.2	3.92	0.07	0.16
Total		28,582	52,111	86	52,197	1,206	2,917.35	23.7	1.83	0.042	0.102
Total Indian Reservation	1938	100				1	0.74	100.0	0	0.010	0.0074
Total Federal Lands		348,577	391,019	12,747	403,766	9,794	19,923.02	35.6	1.157	0.028	0.057
State and Municipal	1937	160				1	7.47	160.0		0.006	0.047
	1938	95		226	226	5	8.48	19.0	2.38	0.053	0.089
	1939	1					0.34				0.34
Total		256		226	226	6	16.29	42.7	0.88	0.023	0.064
Private											
	1934	558,012	14,554	85,499	100,053	2,663	14,537.24	209.5	0.18	0.048	0.026
	1935	588,360	147,954	113,108	261,062	8,031	23,167.83	72.2	0.44	0.014	0.039
	1936	947,341	351,229	347,998	699,227	14,376	37,194.63	65.9	0.74	0.015	0.039
	1937	524,913	72,802	71,745	144,547	4,773	9,314.00	109.8	0.28	0.009	0.018
	1938	201,515	28,996	28,227	57,223	1,800	3,535.87	111.6	0.28	0.0089	0.0175
	1939	32,134	65,343	2,110	67,453	846	2,734.38	37.9	2.10	0.026	0.085
Total		2,852,275	680,878	648,687	1,329,565	32,489	90,483.95	87.8	0.47	0.011	0.032
GRAND TOTAL ALL LANDS		3,201,108	1071,897	661,660	1,733,557	42,289	110,423.26	76.0	0.54	0.013	0.035

SUMMARY OF RIBES ERADICATION IN 1939

By Working, Project and Ownership

TENNESSEE

TABLE 1

Classification	Acreage Worked	Number of Ribes Destroyed			Number 8 hour man-days	Total Cost	Number Acres Per Man-days	Per Acre		
		Wild	Cultivated	Total				Number Ribes	Number Man-days	Cost
By Working										
Initial	116,191	648,915	28,970	677,885	9,204	$25,487.86	12.6	5.83	0.08	0.219
Rework	15,308	9,281	60,073	69,354	1,057	2,825.26	14.5	4.53	0.06	0.184
Total	131,499	658,196	89,043	747,239	10,261	28,313.12	12.8	5.68	0.078	0.215
By Project										
Regular	None									
W. P. A.	110,381	658,196	89,043	747,239	9,536	26,863.37	11.6	6.77	0.086	0.243
C. C. C.	21,118	0	0	0	726	1,449.75	29.1	0	0.034	0.068
Total	131,499	658,196	89,043	747,239	10,261	28,313.12	12.8	5.68	0.078	0.215
By Ownership Fed.	31,364	506,820	3,000	509,820	3,582	9,882.73	8.7	16.25	0.114	0.315
Municipal	none									
Private	100,135	151,376	86,043	237,419	6,679.5	18,430.39	14.9	2.37	0.067	0.184
Total	131,499	658,196	89,043	747,239	10,261.5	28,313.12	12.8	5.68	0.078	0.215

TABLE II TENNESSEE SUMMARY OF RIBES ERADICATION IN 1939 BY WORKING [illegible]
AND YEARS 1933 - 1939 Inclusive
(Data for years 1933 - 1938 inclusive are com[illegible]

Classification	Year	Acres	No. Ribes Destroyed Wild	Cult.	Total	Total Man-Days Labor	[illegible]	No. Acres per Man-day	Per Acre No. Ribes	No. Man-Days	Cost
Initial Working	1933-'38	512,920	4,445,955	156,538	4,602,493	26,647	[illegible]	19.2	8.98	0.052	0.114
	1939	116,191	648,915	28,970	677,885	9,204	[illegible]	12.6	5.83	0.08	0.219
	Totals	629,111	5,094,870	185,508	5,280,378	36,051	[illegible]	17.5	8.40	0.057	0.134
Rework	1933-'38	3,732	149,122	-	149,122	613	[illegible]	6.0	40.0	0.218	0.423
	1939	15,308	9,281	60,073	69,354	1,057	[illegible]	14.6	4.53	0.06	0.181
	Totals	19,040	158,403	60,073	218,476	1,670	[illegible]	10.2	11.5	0.098	0.251
GRAND TOTAL INITIAL & REWORK		648,151	5,253,273	245,581	5,498,854	37,721	[illegible]	17.2	8.5	0.059	0.137
Project WPA	1935-'38	370,956	4,317,291	154,480	4,471,771	25,487	[illegible]	14.56	12.00	0.0687	0.164
	1939	110,381	658,196	89,043	747,239	9,533	[illegible]	11.6	6.77	0.086	0.243
	Totals	481,337	4,975,487	243,523	5,219,010	35,023	[illegible]	13.87	10.85	0.073	0.189
CCC	1935-'36	23,356	111,091	144	111,235	734	[illegible]	31.8	4.76	0.0316	0.073
	1939	21,118	-	-	-	725	[illegible]	29.1	0.0	0.034	0.058
	Totals	44,474	111,091	144	111,235	1,459	[illegible]	30.4	2.51	0.033	0.075
PWA Total 1934-1935		122,340	166,695	1,914	168,609	1,439	[illegible]	85.0	1.37	0.018	0.010
GRAND TOTAL ALL PROJECTS		648,151	5,253,273	245,581	5,498,854	37,921	[illegible]	17.2	8.5	0.059	0.137

See 1938 report for breakdown by years 1933 to 1938 inclusive

TABLE III TENNESSEE

SUMMARY OF RIBES ERADICATION BY OWNERSHIP AND YEARS
1933 - 1939
(Data for 1933-1938 inclusive are combined in ownership)

Classification	Year	Acres	No. of Ribes Destroyed			Total Man-Days Labor	Total Cost	No. Acres per Man-Day	Per Acre		
			Wild	Cult.	Total				No. Ribes	No. Man-Days	Cost
Ownership											
Federal Nat'l. Forests	1933-1938	123,158	1,089,008	4,760	1,093,768	5,868	12,915.09	20.95	8.87	0.0476	0.105
	1939	31,364	506,820	3,000	509,820	3,582	9,882.73	8.7	16.25	0.114	0.315
	Totals	154,522	1,595,828	7,760	1,603,588	9,450	22,797.82	16.38	10.39	0.061	0.147
Nat'l. Park	1933	1,825	2	14	16	198	200.15	0.92	0.009	0.108	0.109
	1939	None									
Total Federal Lands		156,347	1,595,830	7,774	1,603,604	9,648	22,997.97	16.50	10.23	0.062	0.147
Private	1934-'38	391,669	3,506,067	151,764	3,657,831	21,594	47,227.23	18.1	9.33	0.055	0.115
	1939	100,135	151,376	86,043	237,419	6,679.5	18,430.39	14.9	2.37	0.067	0.184
	Totals	491,804	3,657,443	237,807	3,895,250	28,273.5	65,657.62	17.41	8.04	0.058	0.133
GRAND TOTAL ALL LANDS		648,151	5,253,273	245,581	5,498,854	37,921	88,655.59	17.2	8.5	0.059	0.137
Year	1933	10,720	62,832	40	62,872	382	1,048.83	28.0	5.86	0.035	0.098
	1934	101,588	64,041	1,255	65,296	1,230	6,971.82	82.5	0.64	0.012	0.068
	1935	48,647	321,636	2,840	324,476	1,650	4,473.77	29.5	6.67	0.034	0.092
	1936	102,443	1,287,694	27,444	1,315,138	4,758	8,177.02	21.5	12.84	0.046	0.08
	1937	122,831	1,269,252	62,291	1,331,543	8,810	15,274.04	13.9	10.84	0.071	0.124
	1938	130,423	1,589,622	62,668	1,652,290	10,830	24,396.99	12.04	12.67	0.083	0.187
	1939	131,499	658,196	89,043	747,239	10,261	28,313.12	12.8	5.68	0.078	0.215
	Totals	648,151	5,253,273	245,581	5,498,854	37,921	88,655.59	17.2	8.5	0.059	0.137

See Table 4 for breakdown of ownership by years 1933-1939 inclusive

TABLE 4 TENNESSEE

SUMMARY OF RIBES ERADICATION BY OWNERSHIP AND BY YEARS
1933-1939 inclusive

Ownership	Year	Acres	No. of Ribes Destroyed			Total Man-Days Labor	Total Cost	No. Acres per Man-Days	Per Acre		
			Wild	Cult.	Total				No. Acres	No. Man-Days	Cost
Federal											
Nat'l. Forests	1933	8,895	62,830	26	62,856	184.00	818.08	48.3	7.06	0.020	0.095
	1934	11,970	185	-	185	216.00	633.44	55.4	0.015	0.018	0.053
	1936	860	258,796	3,134	261,930	89.15	120.22	9.75	304.57	0.103	0.139
	1937	47,045	182,712	75	182,787	1,500.75	3,173.76	31.30	3.88	0.032	0.067
	1938	54,388	584,485	1,525	586,010	3,878.00	8,138.99	14.02	10.78	0.071	0.149
	1939	31,364	506,820	3,000	509,820	3,582.00	9,882.73	8.70	16.25	0.114	0.315
Totals		154,522	1,595,828	7,760	1,603,588	9,449.90	22,797.82	16.38	10.39	0.061	0.147
National Park	1933	1,825	2	14	16	198.00	200.15	0.92	0.009	0.108	0.109
	1939	None									
Total Federal		156,347	1,595,830	7,774	1,603,604	9,647.90	22,997.97	16.50	10.23	0.062	0.147
Private	1934	89,618	63,856	1,255	65,111	1,014.0	6,338.38	8.9	0.726	0.011	0.070
	1935	48,647	321,636	2,840	324,476	1,650.0	4,473.77	29.4	6.67	0.034	0.092
	1936	101,583	1,028,898	24,310	1,053,208	4,669.0	8,056.80	21.8	10.36	0.046	0.079
	1937	75,786	1,086,540	62,216	1,148,756	7,309.0	12,100.28	10.4	15.15	0.096	0.159
	1938	76,035	1,005,137	61,143	1,066,280	6,952.0	16,258.00	10.93	14.02	0.091	0.214
	1939	100,135	151,376	86,043	237,419	6,679.5	18,430.39	14.90	2.37	0.067	0.184
Totals		491,804	3,657,443	237,807	3,895,250	28,273.5	65,657.62	17.41	8.04	0.058	0.133
GRAND TOTAL ALL LANDS		648,151	5,253,273	245,581	5,498,854	37,921	88,655.59	17.2	8.5	0.059	0.137

SUMMARY OF RIBES ERADICATION IN 1939
By Working, Project and Ownership

VIRGINIA

Table 1

Classification	Acreage Worked	Number of Ribes Destroyed			Number 8 hour man-days	Total Cost	Number Acres Per Man-Days	Per Acre		
		Wild	Culti.	Total				Number Ribes	Number Man-Days	Cost
By Working										
Initial Work	53,386	400,845	3,339	404,184	4,413	$ 8,591.54	12.1	7.56	0.08	$0.16
Rework	15,008	269,362	191	289,553	4,288	8,153.34	3.5	19.26	0.29	0.54
Total	68,394	690,207	3,530	693,737	8,701	16,744.88	7.9	10.15	0.13	0.24
By Project										
Regular	43	1,206		1,206	41	66.60	1.05	28.0	0.95	1.56
W. P. A.	40,739	660,270	2,830	663,100	8,348	16,105.92	4.87	16.3	0.205	.40
C. C. C.	27,612	28,731	700	29,431	312	572.36	88.5	1.07	0.013	.02
Total	68,394	690,207	3,530	693,737	8,701	16,744.88	7.9	10.15	0.13	0.24
By Ownership										
Federal										
National Parks	1,439	28,985		28,985	309	568.50	4.65	20.1	0.21	0.39
National Forest	20,713	444,248	433	444,681	4,765	9,132.52	4.34	21.4	0.23	0.44
Subtotal Federal	22,152	473,233	433	473,666	5,074	9,701.02	4.39	21.4	0.229	0.438
Private	46,242	216,974	3,097	220,071	3,627	7,043.86	12.73	4.7	0.079	0.152
Total	68,394	690,207	3,530	693,737	8,701	16,744.88	7.9	10.15	0.13	0.24

TABLE 2 VIRGINIA SUMMARY OF RIBES ERADICATION BY WORKING AND YEAR 1928-1939 Inclusive
(Data for Years 1928-1938 combined)

Classification	Year	Acres	No. of Ribes Destroyed			Total Man-Days	Total Cost	Acres per Man-Day	Per Acre		
			Wild	Cult.	Total				No. of Ribes	No. of Man-Days	Cost
Working											
First	1928-1938	549,954	4,389,906	50,605	4,440,511	51,192.3	109,612.02	10.75	8.10	0.093	0.199
	1939	53,386	400,845	3,339	404,184	4,413.0	8,591.54	12.10	7.56	0.08	0.16
	Totals	603,342	4,790,751	53,944	4,844,695	55,605.0	118,203.56	10.83	8.04	0.09	0.197
Rework	1932-1938	37,556	1,176,680	65	1,176,745	13,811.0	23,049.63	2.72	31.40	0.37	0.614
	1939	15,008	289,362	191	289,553	4,288.0	8,153.34	3.5	19.26	0.29	0.54
	Totals	52,564	1,466,042	256	1,466,298	18,099.0	31,202.97	2.9	27.80	0.34	0.59
Total all Workings		655,904	6,256,793	54,200	6,310,993	73,704.	149,406.53	8.9	9.62	0.11	0.228
Project											
Regular	1928-1938	10,256	60,246	2	60,248	138.2	1,219.67	96.2 (1)	5.87	5.01	0.119
	1939	43	1,206	-	1,206	41.0	66.60	1.05	28.0	0.95	1.55
	Totals	10,299	61,452	2	61,454	179.2	1,286.27	57.50	5.96	0.017	0.125
WPA and S.C.S.	1935-1938	393,170	2,895,052	29,410	2,924,462	37,343.0	62,267.16	10.6	7.44	0.095	0.15
WPA	1939	40,739	660,270	2,830	663,100	8,348.0	16,105.92	4.87	16.30	0.205	0.40
Total WPA		433,909	3,555,322	32,240	3,587,562	45,691.0	78 373.08	9.50	8.28	0.105	0.18
Total PWA	1934-1935	124,400	720,048	21,227	741,275	5,471.0	26,465.31	22.7	5.16	0.044	0.212
CCC	1933-1938	59,684	1,891,240	31	1,891,271	22,050.5	42,709.51	2.7	31.70	0.370	0.715
	1939	27,612	28,731	700	29,431	312.4	572.36	88.5	1.07	0.013	0.207
Total CCC		87,296	1,919,971	731	1,920,702	22,362.5	43,281.87	3.9	22.0	0.256	0.497
Total Emergency Program		645,605	6,195,341	54,198	6,249,539	73,525.	148,120.26	8.8	9.67	0.113	0.229
GRAND TOTAL (All Programs)		655,904	6,256,793	54,200	6,310,993	73,704.	149,406.53	8.9	9.62	0.11	0.228

(1) This is not exact since no record of man-days is available prior to 1939
See 1938 report for breakdown by years 1928-'38 inclusive

TABLE 3 VIRGINIA SUMMARY OF RIBES ERADICATION BY OWNERSHIP AND YEAR 1928-1939 Inclusive

Classification	Year	Acres	No. of Ribes Destroyed			Total Man-Days Labor	Total Cost	Acres Per Man-Day	Per Acre		
			Wild	Cult.	Total				No. Ribes	No. Man-Days	Cost
Ownership											
Federal											
National Forests	1928-1938	122,976	1,877,966	3,045	1,881,011	21,928.3	37,475.43	5.6	15.36	0.178	0.305
	1939	20,713	444,248	433	444,681	4,780.0	9,132.52	4.34	21.40	0.23	0.44
Totals		143,689	2,322,214	3,478	2,325,692	26,[illegible]	46,607.95	5.93	16.16	0.186	0.324
National Parks	1933-1938	28,324	1,841,284	6	1,841,290	17,[illegible]	39,138.05	1.57	65.0	0.634	1.38
	1939	1,439	28,985	-	28,985	[illegible]	568.50	4.65	20.1	0.21	0.39
Totals		29,763	1,870,269	6	1,870,275	18,[illegible]	39,706.55	1.62	63.0	0.617	1.33
Sub-Total Federal		173,452	4,192,483	3,484	4,195,967	44,[illegible]	86,314.50	3.86	24.2	0.257	0.498
Municipal	1936-1938	4,333	3,000	-	3,000	[illegible]	155.12	69.1	0.69	0.014	0.036
	1939	None									
Total Municipal		4,333	3,000	-	3,000	[illegible]	155.12	69.1	0.69	0.014	0.036
Private (2)	1932-1938	431,877	1,844,336	47,619	1,891,955	25,028.9	55,893.05	17.2	4.38	0.058	0.129
	1939	46,242	216,974	3,097	220,071	3,647.9	7,043.86	12.73	4.7	0.079	0.152
Totals		478,119	2,061,310	50,716	2,112,026	28,[illegible]	62,936.91	16.66	4.4	0.060	0.132
GRAND TOTAL ALL LANDS		655,904	6,256,793	54,200	6,310,993	73,704.	149,406.53	8.9	9.62	0.11	0.228
Year	1928-1931	4,187	13,584	2	13,586	No data	384.66	-	3.24	-	0.092
	1932	2,848	36,274	-	36,274	No data	223.51	-	12.77	-	0.078
	1933	22,768	262,045	-	262,045	2,911.00	9,273.58	7.8	11.50	0.128	0.407
	1934	108,626	1,054,750	13,925	1,068,675	11,886.0	30,760.93	9.14	9.84	0.109	0.294
	1935	92,818	1,314,770	8,963	1,323,733	13,665.3	31,721.05	6.8	14.26	0.147	0.341
	1936	107,952	1,010,711	17,925	1,028,636	12,333.0	21,024.39	8.6	9.53	0.114	0.202
	1937	170,065	1,096,244	5,891	1,102,135	13,520.0	22,641.71	12.6	6.44	0.079	0.132
	1938	78,246	778,208	3,964	782,172	10,689.0	16,631.32	7.3	9.99	0.137	0.21
	1939	68,394	690,207	3,530	693,737	8,701.0	16,744.88	7.9	10.15	0.13	0.24
Totals		655,904	6,256,793	54,200	6,310,993	73,704.	149,406.53	8.9	9.62	0.11	0.228

(2) Includes some state and municipal from 1932 to 1935 inclusive
See 1938 report for summary of ownership by years 1928-1938 inclusive

SUMMARY OF RIBES ERADICATION IN 1939

By Working, Project and Ownership

WEST VERGINIA

TABLE 1

Classification	Acreage Worked	Number of Ribes Destroyed Wild	Culti.	Total	Number 8 hour man-days	Total Cost	Number Acres Per man-days	Per Acre Number Ribes	Man-days	Cost
By Working										
Initial Work	89,213	877,229	2,304	879,533	4,864	$14,518.33	18.2	9.83	0.05	$0.163
Rework	7,641	68,567	-	68,567	360	1,116.60	21.2	8.98	0.05	0.148
Total	96,854	945,796	2,304	948,100	5,224	15,634.93	18.5	9.9	0.054	0.161
By Project										
F. E. A.	77,701	857,990	1,529	859,519	3,727	12,032.27	20.8	11.0	0.048	0.157
C. C. C.	19,153	87,806	775	88,581	1,497	3,602.66	13.0	4.6	0.078	0.188
Total	96,854	945,796	2,304	948,100	5,224	15,634.93	18.5	9.9	0.054	0.161
By Ownership										
Federal	31,674	184,509	6	184,515	1,266	3,948.10	25.0	5.8	0.04	0.125
Private	65,180	761,287	2,298	763,585	3,958	11,686.83		11.7	0.07	0.179
Total	96,354	945,796	2,304	948,100	5,224	15,634.93	18.5	9.9	0.054	0.161

Value of cultivated currants and gooseberries destroyed was erroneously included in Annual Statistical Table 4 - 231.30

Total cost to agree with Table 4 Cost of Ribes Eradicated 15,866.23

Note: If the value of cultivated bushes was included in above

Total initial cost would be	14,747.63
Total Regular Coop. Cost	231.30
Federal Cost would be	3,947.70
Private cost would be	11,930.53

TABLE 2 WEST VIRGINIA SUMMARY OF RIBES ERADICATION BY WORKING AND OWNERSHIP 1932-1939 Inclusive
(Data for years 1932-1938 inclusive are combined)

Classification	Year	Acres	No. of Ribes Destroyed			Total Man-Days Labor	Total Cost	Acres per Man-Days	Per Acre		
			Wild	Cult.	Total				No. Ribes	Man-Days	Cost
Working First	1932-1938	466,381	2,274,556	11,528	2,286,084	[illegible]	81,797.78	18.9	4.78	0.053	0.175
	1939	89,213	877,229	2,304	879,533	[illegible]	14,816.33	18.2	9.83	0.05	0.163
	Totals	555,594	3,151,785	13,832	3,165,617	[illegible]	96,314.12	18.9	5.69	0.053	0.175
Rework	1934-1938	44,247	156,080	8	156,088	[illegible]	6,373.40	12.05	3.53	0.049	0.144
	1939	7,641	68,567	-	68,567	[illegible]	1,118.60	21.2	8.98	0.05	0.148
	Totals	51,888	224,647	8	224,655	[illegible]	7,492.00	12.18	4.34	0.049	0.144
Total all Workings		607,482	3,376,432	13,840	3,390,272	[illegible]	103,806.12	18.95	5.59	0.053	0.171
Ownership											
National Forests	'33-'38	91,186	505,356	179	505,535	[illegible]	14,887.80	15.15	5.54	0.066	0.163
	1939	31,674	184,509	6	184,515	[illegible]	3,945.10	25.0	5.8	0.04	0.125
	Totals	122,860	689,865	185	690,050	[illegible]	18,832.90	16.86	5.62	0.059	0.154
State	1934-1938	11,380	89,858	58	89,916	[illegible]	1,823.85	16.3	7.9	0.061	0.16
	1939	None									
	Totals	11,380	89,858	58	89,916	[illegible]	1,823.85	16.3	7.9	0.061	0.16
Private (1)	1932-1938	408,062	1,835,422	11,299	1,846,721	[illegible]	71,459.54	20.3	4.52	0.049	0.175
	1939	65,180	761,287	2,298	763,585	[illegible]	11,689.83	16.5	11.7	0.067	0.179
	Totals	473,242	2,596,709	13,597	2,610,306	[illegible]	83,149.37	19.7	5.52	0.057	0.175
TOTAL ALL LANDS		607,482	3,376,432	13,840	3,390,272	[illegible]	103,806.12	18.95	5.59	0.053	0.171

(1) Probably includes work on State lands through 1935
See 1938 Report for breakdown by years 1932-1938 inclusive

TABLE 3 WEST VIRGINIA SUMMARY OF RIBES BY PROJECT AND YEAR 1933 - 1939 Inclusive

Classification	Year	Acres	No. of Ribes Destroyed			Total Man-Days	Total Cost	Acres per Man-Day	Per Acre		
			Wild	Cultivated	Total				No. Ribes	No. Man-Days	Cost
Project											
Regular	1932-1938	3,970	22,844	-	22,844	244	817.07	16.2	5.7	0.061	0.206
	1939	None	-	-	-	-	-	-	-	-	-
	Total	3,970	22,844	-	22,844	244	817.07	16.2	5.7	0.061	0.206
PWA Total	1934-1935	46,045	341,031	4,703	345,734	2,410	11,497.30	19.1	7.5	0.053	0.250
WPA	1935-1938	405,254	1,574,552	6,704	1,581,256	17,540.1	62,478.30	23.3	3.9	0.043	0.153
	1939	77,701	857,990	1,529	859,519	3,727.0	12,032.27	20.8	11.0	0.048	0.157
	Total	482,955	2,432,542	8,233	2,440,775	21,267.1	74,510.57	22.6	5.0	0.044	0.154
CCC	1933-1938	55,359	492,209	129	492,338	6,587.4	13,378.52	8.3	8.9	0.119	0.242
	1939	19,153	87,806	775	88,581	1,497.0	3,602.66	13.0	4.6	0.078	0.188
	Total	74,512	580,015	904	580,919	8,084.4	16,981.18	9.2	7.8	0.108	0.228
Total Emergency Programs		603,512	3,353,588	13,840	3,367,428	31,761.5	102,989.05	19.9	5.6	0.052	0.170
GRAND TOTAL		607,482	3,376,432	13,840	3,390,272	32,005.5	103,806.12	18.95	5.59	0.053	0.171
Year	1932	268	2	-	2	no data	24.35	-	.0075	-	0.091
	1933	4,256	60,748	-	60,748	635.0	1,332.75	6.7	14.25	0.149	0.313
	1934	33,184	131,679	3,386	135,065	1,908.0	7,575.61	17.4	4.07	0.057	0.228
	1935	37,681	402,505	2,027	404,532	3,062.0	10,529.74	12.4	10.68	0.081	0.280
	1936	86,928	376,039	394	376,433	5,827.5	17,057.00	14.7	4.34	0.067	0.196
	1937	189,093	640,252	1,297	641,549	8,209.0	27,205.55	23.0	3.4	0.043	0.143
	1938	159,218	819,411	4,432	823,843	7,140.0	24,446.19	22.3	5.16	0.045	0.153
	1939	96,854	945,796	2,304	948,100	5,224.0	15,634.93	18.5	9.9	0.054	0.161
Total		607,482	3,376,432	13,840	3,390,272	32,005.5	103,806.12	18.95	5.59	0.053	0.171

See 1938 report for breakdown by years 1932-1938 inclusive

NURSERY SANITATION

NURSERY SANITATION IN 1939

Delaware

Of the 20 nurseries inspected in the State of Delaware, only seven were found to be growing white pine. These had a total of 50,537 trees, 50,000 of which were located at the State Nursery. In age these trees ranged from seedlings to 25 year old trees. 1,500 acres were worked and 75 cultivated Ribes were destroyed. Only three nurseries in the State can be classed as large; the remainder are conducted on a small scale.

Georgia and Tennessee

No Nurseries were inspected in 1939.

Kentucky

The State Forestry Nursery at Louisville was inspected again in 1939, by Mr. J. Curtis Ball of the Richmond office. Mr. Welch inspected this last in 1937. The nursery had 40,000 one year old seedlings, 20,000, two year old stock and 400 transplants. The 24 gooseberries and currants found in the near vicinity of the nursery by Mr. Welch in 1937 had been destroyed. No Ribes were found by Mr. Ball on this inspection trip.

Maryland

The nursery sanitation during the year consisted in inspecting previous known Ribes locations surrounding the five principal pine-growing privately-owned nurseries in the state. The State Forest Nursery at Sunnyside is being abandoned and at the time this work was carried on it appeared probably that the one at College Park would be abandoned.

An examination of the State Forest Nursery at Herrington Manor indicated that no work was necessary during the year. It is planned during 1940 to do intensive scouting for Ribes ardound all the State-owned and privately-owned nurseries.

The five nurseries inspected during 1939 in Maryland were: Small, Gude, Rock Creek, Quaint Acres and Towson. The one bush destroyed was a gooseberry sprout found at the residence of Mr. Enoch Rocks at Small's Nursery.



North Carolina Large white pine growing nursery of the Soil Conservation Service, Chapel Hill, N. C. which grows from 250,000 to 500,000 white pine annually.

N. C. No. 405

Taken by H. B. Teague in 1937

North Carolina

During 1939 three nurseries were worked in Avery County by Mr. H. A. Whitman. No other nurseries were worked or inspected during the year. The three nurseries that were worked were Anthony Lake Nursery and Robbins Nursery, Pineola, N. C., with both of these nurseries being reworked. The Linville Nursery at Linville, N. C. was worked for the first time since it has become a white pine growing nursery. This nursery had been inspected previously but did not have white pine growing in the nursery at that time.

The Anthony Lake Nursery owned by Mr. H. C. Marmon, Pineola, N. C., lies in grids K-10 and K-11 in Avery County. The control acreage that was reworked in 1939 included 100 acres crew work, 75 acres scout, 12 acres blocked out, for a total of 187 acres worked. Laborers worked 252 man-hours and eradicated 1,162 wild Ribes.

On Mr. E. C. Robbins' nursery at Pineola, N. C. in grid L-11 - 31 acres were reworked by crew with 128 man hours of labor being used to eradicate 113 wild Ribes.

At the Linville Nursery, Linville, N. C., 250 acres were worked initially on nursery sanitation with 210 man hours of labor being used to eradicate three escaped Ribes and 174 wild bushes for a total of 177 Ribes eradicated. This nursery has set out 125 white pines about four years old. The following table shows the number of white pines in each of these nurseries:

NURSERY SANITATION WORK 1933 - 1939
(Includes Checking on Previous Work)

North Carolina

Name of Nursery	Address	Control Acreage Worked	No.of White Pines in Nursery	N o.of Ribes Pulled
	Nursery Sanitation Work 1933-1938			
Anthony Lake Nursery	Pineola, N. C.	1,192	4,000	3,392
Beakley Nursery	Hendersonville,N.C.	192	50	0
Camp's Flowers	Hendersonville,N.C.	0	0	0
Carolina Nursery	East Flat Rock,N.C.	192	150	0
Champion Fibre Co.Nursery	Canton, N. C.	192	50,000	685
Gardens of the Blue Ridge	Pineola, N. C.	192	1,500	87
Hamburg,Nursery	Weaverville, N. C.	192	50	125
Keith Nursery	Hendersonville, N. C.	192	15	0
LaBarrs Nursery	Jones Ridge, N. C.	192	800	0
Log Cabin Association	Sylva, N. C.	200	50,000	40
Nettlewood Nursery	Asheville, N. C.	192	0	3
Nielsen Nursery	Fletcher, N. C.	192	30	0
Niknar Farm	Asheville, N. C.	192	0	67
Poinsett Gardens	Zirconia, N. C.	192	500	0
Robbins Nursery	Pineola, N. C.	551	900	514
Sinclair Nursery	RFD #3 Henderson-sonville, N. C.	192	102	19
Soil Conservation Service	Polkton, N. C.	192	3,600	0
" " "	Chapel Hill, N. C.	192	546,000	0
State Forest Service Nurs.	Hendersonville, N.C.	200	500,000	0
Stedman Nursery	"	192	50	0
Strickor Farms	Asheville, N. C.	192	200	142
Von Cannon Nursery	Banner Elk, N. C.	192	15	47
Wildwood Nursery	Blowing Rock, N. C.	190	2,515	0
Sub-Total		5,597	1,160,477	5,122

NURSERY SANITATION WORK 1939

North Carolina

Name of Nursery	Address	Control Acreage Worked	No. of White Pines in Nursery	No. of Ribes Pulled
Anthony Lake Nursery (Rework)	Pinsola, N.C.	0	0	1,162
Linville Nursery	Linville, N.C.	468	125	177
Robbins Nursery (Rework)	Pinsola,	0	0	113
Sub-total		468	125	1,452
Total - 1933 - 1939		4,065	1,160,602	6,574

NURSERY SANITATION
VIRGINIA
1939

Numerical Order	Counties	Nurseries	Location	Acreage Examined
1	Albemarle	State Forest Tree	Charlottesville	160
2	Augusta	Fairfax Hall	Waynesboro	75
3	Augusta	Waynesboro	Waynesboro	250
4	Augusta	H. B. Jordan	Staunton	150
5	Campbell	Campbell County	Lynchburg	0
6	Fairfax	Forman's	Washcfield Chapel	520
7	Fairfax	Westcott's	Falls Church	200
8	Pittsylvania	Soil Conservation	Chatham	200
9	Roanoke	Hedge Lawn	Roanoke	300
10	Roanoke	Little Tree	Roanoke	165
			Total	2,020

Numerical Order	Ribes Destroyed			Man-Days			Federal Costs			No. of Pine
	Wild	Culti.	Total	Crew	Agent	Total	Crew	Agent	Total	
1	0	0	0	0	0.50	0.50	0	2.25	2.25	246300
2	0	0	0	0	0.50	0.50	0	2.50	2.50	250
3	48	6	54	5.00	1.00	6.00	9.68	4.50	14.18	3004
4	0	0	0	0	0.50	0.50	0	2.50	2.50	50
5	0	12	12	0	0	0	(Owner Destroyed) bushes			25
6	0	8	8	1.00	0	1.00	3.28	0	3.28	166
7	0	0	0	1.00	0	1.00	3.28	0	3.28	935
8	0	0	0	0	1.00	1.00	0	4.50	4.50	50000
9	0	0	0	1.00	0	1.00	3.28	0	3.28	62
10	0	0	0	1.00	0	1.00	3.28	0	3.28	700
Totals	48	26	74	9.00	3.50	12.50	22.80	16.25	39.05	301492

All nurseries were reworked.

NURSERY SANITATION IN 1939

State	Number Nurseries Worked	No. White Pines in Nurseries	Number Acres Worked	No. Ribes Destroyed		No. 8 hour man-days
				Wild	Culti.	
Delaware	7	50,537	1,500	-	75	12
Georgia	None					
Kentucky	1	60,400	200			(1)
Maryland	5	9,617	3,005		1	(1)
North Carolina	3	125	468	1,449	3	74
Tennessee	None					
Virginia	10	301,492	2,020	48	26	9
West Virginia	1	30,000	643	6,258	9	34
Totals	27	452,171	7,836	7,755	114	129

NURSERY SANITATION FOR PERIOD 1918-1939 Inclusive

No. of Nurseries Sanitation Zone Maintained		Nurseries Zone Abandoned	Nurseries Maintaining Zones	Nurseries Which Abandoned Zones	Total Acreage	Number Ribes Destroyed		Number 8 hour man-days
						Wild	Culti.	
Dela.	7	2	2,000	500	2,500	0	88	(2) (1)
D.C.	None							
Georgia		1		179	179		8	1
Ky.	1		200		200		24	(1)
Md.	13		4,207		4,207	12,314	169	(1)
N. C.	21		5,107		5,107	1,536	747	194
Tenn.	3		1,202		1,202		14	12
Va.	10		2,020		2,020	48	26	9
W.Va.	2		768		768	29,725	614	659
Totals	57	3	15,504	679	16,183	43,623	1,690	375.

(1) Work by Agent - hence charged to supervision
(2) In Delaware - 97 R nigrum were destroyed at 22 locations, in last 2 years but these are included in figures under initial Ribes eradication.

REPORT OF RIBES S PPRESSION

at

U.S.F.S. NURSERY, PARSONS, W. VA.

INTRODUCTION

Eradication of Ribes bushes, the alternate host of white pine blister rust, has been conducted at the U. S. Forest Service Nursery at Parsons, W. Va. since 1929 to prevent the spread of this disease and a surrounding protective strip approximately 1,500 feet wide has been worked repeatedly (at least once and sometimes twice each summer) since that time. The aim of this work is to establish eventually a Ribes free control area, and meanwhile to suppress Ribes growth below a danger point. As in previous yearsthe control area was reworked in 1939.

The work this year was done during the period April 20 to May 25. Conditions were especially favorable this spring for locating Ribes bushes. A warm period early in April caused the bushes to "leaf-out". This was followed by a period of less favorable growing weather which held back the foliation of other less hardy vegetation and thus prolonged the period during which Ribes were in leaf and most other kinds of vegetation were still dormant.

LABOR

The work was begun with CCC labor, which was given a days training pulling Ribes in an area somewhat out of the 1,500 foot zone but adjacent to it and overlooking the nursery. After the second day, and except for working the cliff, across the Blackwater River and overlooking the nursery, the use of CCC labor was discontinued because we could not obtain the continued use of the same persons on the eradication crew. From this

time on the total area of about 633 acres was covered by Mr. R. G. Pennington who has been acting in the capacity of crew foreman in this work for a number of years. For the cliff work Mr. Pennington was assisted by one laborer assigned from the CCC camp.

CONTROL DATA

In all 6,267 bushes were destroyed. Of these, however, only 531 were pulled inside the 1,500 foot zone; 618 were pulled on the north slope of Turkey Knob; and 5,118 on the west slope of the ridge lying between the forks of the roads to Hamleton and Thomas. The latter location was used as a training ground for inexperienced CCC labor. The bushes in this location although outside the control zone are potentially dangerous to the nursery.

Except for the bushes pulled outside of the 1,500 foot zone, most of the bushes were small, either seedlings or two or three years old. A number of sprouts were found, however, resulting from broken crowns or large roots. This condition is difficult to avoid when using inexperienced CCC crews over which the crew foreman has little authority.

Of the 531 bushes pulled in the control zones only 9 were of cultivated varieties. These were all flowering currant sprouts, and were found in blocks 12 & 30. The attached table shows where all the bushes were pulled by blocks.

COSTS

14 man days of CCC labor @ $1.50	$21.00
192 man hours @ $.56	105.60
	$126.60

BUSHES PULLED AT PARSONS NURSERY
FROM APRIL 20 - MAY 25, 1939

BLOCK	RIBES
2	95
3	262
5	1
7 B	6
7 C & E	40
7 D F & G	8
7 H	3
10	4
12	8 -3C
15 B	2
30	3 -6C
32 E	2
38 A	43
39 A	2
40 B	8
41 B	35
Subtotal	531
Roaring Run	5,118
N. Slope Turkey Knob	618
TOTAL	6,267

J. M. Ashcroft
September 11, 1939

September 11, 1951

PARSONS NURSERY
(Continued)

Of 60 blocks and subblocks in which ribes have been found in the control area including the Parsons Nursery, since work began in 1928, eight had only cultivated bushes. The remaining 52 had either wild bushes or wild and cultivated bushes. In 1939 ribes were found in only 16 of the sixty blocks, in 1938 in 14 blocks, and in 1937 in 17 blocks and in the three years in only 28 different blocks. This shows that not only is the ribes population being kept down, but that in more than 50 per cent of the blocks no ribes have been found in the past three years.

Roy G. Pierce
March 14, 1940

CANKER ELIMINATION

CANKER ELIMINATION

Canker elimination, in order to save white pines infected with the blister rust, began in Maryland in 1936 and in Virginia in 1935. In Maryland the work has been carried on on Federal and State land with the exception of Nicola's plantation for which the State is dickering. A cumulative acreage of 1,868 has been included in the treatment in Maryland. 5,033 trees being treated and 258 removed, of 139,354 trees examined. 14,725 cankers have been removed, an average of 2.9 cankers per tree.

Canker elimination work was carried on in Maryland in 1939 on four areas totalling 776 acres in Garrett County, all but one being state-owned. Two of the areas were native white pine at Recreation Centers, the others being plantations. A total of 56,096 trees were examined of which 1,377 were found infected. 413 stem and 2,795 branch cankers were removed. 155 trees were destroyed on this work. Most of this work consisted of mop-up work on previous canker elimination.

In Virginia the National Park Service began salvaging their infected white pine on important areas adjacent to Skyline Drive in the Shenandoah National Park in 1935 and have continued ever since. On the George Washington National Forest canker elimination has been carried on since 1937 particularly in young stands. A cumulative acreage of 3,413 has been worked to date; 19,776 trees being treated and 3,147 removed of 449,444 examined.

The cost figures on the tables following represent not only the actual elimination of cankers, but the removal of badly infected trees, and the work of searching for infected trees. This latter cost might well be eliminated by charging it to miscellaneous - Study of Infection Conditions. The cost to date for this work averages $1.40 per acre in Maryland and $1.33 per acre in Virginia.

CANKER ELIMINATION - MARYLAND

Numerical Order	Place	Year of Work	Ornamental or Forest Stand	Pine Acr'g Treated	Size of Trees	Number of Trees Examined	Trees Treated: Cankers Cut	Trees Treated: Cut Down	Trees Treated: Total Treated
1	Emory Place	1936	Forest	30	Mostly +6"DBH	2,878	1,355	14	1,369
2	Harrington Manor	1937	Plant	16	1"-2" DBH	19,520	18	18	36
3	" "	1939	"	8	1"-2" "	8,529	31	14	45
4	Winter's plantation	1937	"	1	1"-3" "	1,220	5	3	8
5	Swallow Falls	1937	For.	890	1"-12" "	23,866	1,560	56	1,616
6	" "	1939	"	615	1"-12" "	18,195	538	79	617
7	Nicola Plantation	1937	Plant.	150	1"-3" "	30,227	715	12	727
8	" "	1939	"	150	1"-3" "	29,197	784	62	846
9	Monroe Run	1937	Forest	5	1"-6" "	547	3	-	3
10	New Germany	1939	"	3	1"-12" "	175	4	-	4
Totals				1,868		139,354	5,033	258	5,271

Numerical Order	Number of Cankers Removed: Branch	Number of Cankers Removed: Stem	Number Man-Days	Cost	Year of Initial Erad.	County	Quadrangle	Area No.	Working
1	6,000	71	83	$228.03	1934	Garrett	Grantsville	1	1
2	7	18	3	8.50	1933	"	Oakland	4	1
3	35	5	27	78.53	1934	"	"	4	2
4	2	3	1	2.85	1933	"	"	6	1
5	4,255	125	306	867.00	1934/5	"	"	8	1
6	742	146	119	337.08	1934	"	"	8	2
7	1,012	21	224	636.64	1935	"	Accident	1	1
8	2,004	259	147	405.75	"	"	"	1	2
9	3	-	6	17.64	1937	"	Grantsville	34	1
10	14	3	11	33.70	1934	"	"	14	1
	14,074	651	92 7	$ 2,615.72					

Compiled by Mr. H. E. Yost on
February 15, 1940

SUMMARY OF CANKER ELIMINATION IN VIRGINIA

All Areas All Years

Numerical Order	Pine Area	County	Area Name	Year of Work	Ownership	District	Working	Ornamental Forest or
1	2-MA	Madison	Hawksbill Mountain	1935	S.N.P.	-	1st	F
2	4-RA	Rappahannock	Elk Wallow	1936	S.N.P.	-	1st	F
3	8-P	Page	Skyland	1936	S.N.P	-	1st	O-F
4	8-P	Page	Skyland	1937	S.N.P.	-	2nd	O-F
5	6-F	Augusta	Braleys Branch	1937	G.W.N.F	Dry River	1st	F
6		Augusta	Big River	1938	G.W.N.F	" "	1st	F
7		Augusta	Reddish Knob	1938	G.W.N.F.	" "	1st	F
8	3-MA	Madison	Haywood Mountain	1938	S.N.P		1st	F
9	1-P	Page	Black Rock	1938	S.N.P.		1st	O-F
10	4-RA	Rappahannock	Elk Wallow	1939	S.N.P.		2nd	F
11	7-G	Greene	Simmons Gap	1939	S.N.P.		1st	F
12		Rappahannock	Lee Highway	1939	S.N.P.		1st	F
13		Madison	Jewel Overlook	1939	S.N.P.		1st	F
14		Madison	Jewel Overlook	1939	S.N.P.		1st	F
15		Madison	Jewel Overlook	1939	S.N.P.		1st	F
16	7-MA	Madison	Sexton Shelter	1939	S.N.P.		2nd	F
17		Page	Skyland	1939	S.N.P.		3rd	O
18	2-F	Highland	Brushy Fork	1939	G.W.N.F.	" "	1st	F
19	25-F	Rockingham	Hone Quarry	1939	G.W.N.F.	" "	1st	F
20	3-F	Augusta	North River	1939	G.W.N.F.	" "	1st	F
21	7-F	Augusta	Micheals Branch	1939	G.W.N.F.	" "	1st	F
22	3-F	Augusta	Shifflett's Place	1939	G.W.N.F.	" "	1st	F
23	13-F	Augusta	Little River	1939	G.W.N.F.	" "	1st	F
24	6-F	Augusta	Braleys Branch	1939	G.W.N.F.	" "	2nd	F
25	5-F	Augusta	Jerry's Run	1939	G.W.N.F.	Deerfield	1st	F
26	4-F	Augusta	Ramsey's Draft	1939	G.W.N.F.	"	1st	F
27	3-F	Augusta	Route No. 250	1939	G.W.N.F.	"	1st	F
28	14-F	Augusta	Ramsey's Draft	1939	G.W.N.F.	"	1st	F
29	7-F	Highland	Sinkler Hollow	1939	G.W.N.F.	"	1st	F
30	40-F	Highland	Shaws Ridge	1939	G.W.N.F.	"	1st	F
31	20-F	Highland	Shaws Ridge	1939	G.W.N.F.	"	1st	F
32	31-F	Highland	Benson Run	1939	G.W.N.F.	"	1st	F
33	44-F	Highland	Locust Spring	1939	G.W.N.F.	"	1st	O-F
34	45-F	Highland	Benson Run	1939	G.W.N.F.	"	1st	F
35	10-F	Highland	Ginn Hollow	1939	G.W.N.F.	"	1st	F
36	57-	Highland	Benson Run	1939	Private	-	1st	F
37	41	Highland	Shaws Fork	1939	Private	-	1st	F
38	63	Highland	Bull Pasture	1939	Private	-	1st	F
39	69	Highland	Bull Pasture	1939	Private	-	1st	F
40	39-F	Highland	Wheeler Hollow	1939	G.W.N.F.	Deerfield	"	F

SUMMARY OF CANKER ELIMINATION IN VIRGINIA
All Areas All Years
(continued)

Numerical Order	Pine Area	County	Area Name	Year of Work	Ownership	District	Working	Forest or Ornamental
41	31-F	Rockingham	Black Lick Ridge	1939	G.W.N.F	Dry River	1st	F
42	73-F	Rockingham	Riggleman Place	1939	G.W.N.F.	" "	1st	F
43	77-F	Rockingham	Camp Rader Run	1939	G.W.N.F.	" "	1st	F
44	81	Rockingham	Camp Rader Run	1939	Private	" "	1st	F
45	82	Rockingham	Deer Park	1939	Private	" "	1st	F

Numerical Order	Pine Acreage Treated	Size of Trees	Number of Trees Examined	Number of Trees Treated	Number of Trees Cut Down	Number of Trees No. Branch Cankers Removed	Number of Trees No. Stem Cankers Removed	No. Man-days	Cost
1	194	2"-10"	14,755	1,795	277	9,296	-	295.0	$619.64
Total	194		14,755	1,795	277	9,296	-	295.0	619.64
2	40	2"-10"	2,078	706	107	3,958	126	103.2	203.10
3	50	2"-10"	1,073	299	15	1,508	30	65.3	131.00
Total	90		3,151	1,005	122	5,466	156	168.5	334.10
4	50	2"-10"	855	120	2	562	18	19.5	31.20
5	3	2"-4"	630	30	7	163	7	5.0	C.00
Total	53		1,485	150	9	725	25	24.5	37.20
6	253	1"-12"	7,648	181	31	565	19	84.0	136.56
7	40	1"-12"	7,039	1,931	81	22,167	93	177.0	296.80
8	117	1"-12"	3,266	1,587	75	3,727	312	140.0	371.50
9	197		1,442	96	3	151	23	39.0	86.80
Total	612		19,395	3,975	190	26,610	447	440.0	891.66
10	35	1"-10"	1,575	434	31	1,019	145	121.0	39.00
11	2	1"-4"	53	5	1	14	1	Boy S. Erod.	
12			16	0	0	0	0	Regular	
13			29					"	
14			18	1	0	1		"	
15	2		17					"	
16			11					"	
17			49					"	
18	40	1"-12"	11,882	99	8	390	8	73.0	124.40
19	124	1"-12"	9,922	470	46	4,718	46	62.0	112.48
20	440	1"-12"	85,744	900	98	3,102	101	247.0	452.14
21	80	1"-12"	23,542	387	86	2,165	86	59.0	107.44
22	10	1"-4"	2,598	79	20	564	20	10.0	18.64
23	183	1"-3"	25,220	679	11	5,627	11	90.0	163.20
24	53	1"-12"	18,270	1,001	152	5,790	152	56.0	103.34
25	113	1"-12"	11,579	785	380	7,373	380	62.0	114.20

SUMMARY OF CANKER ELIMINATION IN VIRGINIA

All Areas All Years

(continued)

Numerical Order	Pine Acreage Treated	Size of Trees	Number of Trees Examined	Number of Trees Treated	Number Cut Down	No. Branch Cankers Removed	No. Stem Cankers Removed	No. man-days	Cost
26	150	1"-12"	12,185	421	115	2,347	115	47.0	$ 85.44
27	30	1"-12"	8,196	180	58	739	58	26.0	47.36
28	60	1"-12"	8,153	424	57	1,548	57	26.0	47.36
29	25	1"-12"	6,661	246	45	1,586	45	31.0	52.40
30	45	1"-12"	4,615	40	5	181	5	20.0	34.24
31	10	1"-4"	12,774	11	0	16	0	10.0	17.12
32	50	1"-12"	12,708	77	7	478	7	50.0	85.60
33	3	1"-2"	616	44	27	129	27	11.0	18.84
34	14	1"-10"	4,303	70	19	330	19	19.0	32.72
35	28	1"-10"	13,598	59	8	151	8	35.0	58.96
36	80	1"-10"	56,144	471	227	4,104	227	90.0	153.98
37	12	1"-10"	5,250	145	27	352	27	20.0	34.24
38	16	1"-10"	5,587	461	24	2,252	24	18.0	31.10
39	12	1"-10"	3,333	260	48	773	48	17.0	29.68
40	10	1"-12"	3,567	135	10	602	10	27.0	46.80
41	167	1"-12"	4,311	254	27	1,023	27	33.0	71.14
42	212	1"-12"	39,024	4,270	1006	15,156	940	260.0	405.14
43	200	1"-12"	4,550	225	10	525	10	20.0	35.09
44	144	1"-10"	11,658	281	13	387	15	45.0	109.05
45	92	1"-12"	5,100	117	3	302	7	8.0	27.07
GRAND TOTAL			449,444	19776	3147	106841	3234	2421.0	4541.07

TREATMENT OF WHITE PINES, INFECTED WITH BLISTER RUST
Southern Appalachian States 1935-1939 Inclusive

State	Year	Acreage Worked	Number Trees Examined	Number Infected Trees Treated	Number Infected Trees Removed	Number Cankers Removed	Number 8 hour man-days	Cost Data Total (1)	Cost Data Per Acre	Place	Owner
Maryland	1936	30	2,378	1,355	14	6,071	53	$ 228.03	$7.60	Emory Place at Bittinger	
	1937	1,062	80,380	2,301	89	5,446	540	1532.63	1.44(3)	5 areas in Garrett County	
	1938	None									
	1939	776	56,036	1,377	155	3,208	304	855.06	1.10 (4)	4 Areas in " Co.	
Total		1,868	130,334	5,033	258	14,725	927	2615.72	1.40		
Virginia	1935	194	14,755	1,795	277	9,296	295	819.64	3.19		
	1936	90	3,151	1,005	122	5,822	103.5	334.10	3.72		
	1937	53	1,485	150	9	750	24.5	37.20	.70		
	1938	612	19,595	3,795	190	27,057	440.	891.66	1.45		
	1939	2,464	410,058	13,051	2,549	67,350	1,493	2,653.47	1.08		
Total		3,413(2)	449,444	19,776	3,147	110,075	2,421.0	4,541.07	$ 1.33		

(1) The total cost includes 1935 to 1939 inclusive, not only cost of actually treating the trees but the cost of surveying the area to find the infected trees and the cost of searching for cankers on the infected trees themselves.
(2) This figure is cumulative, and represents some areas treated more than once.
(3) Area Worked in 1937 includes Harrington Manor, Winter's plantation, Swallow Falls, Nicolas and Monroe Run
(4) Areas Worked in 1939 include Harrington Manor, Swallows Falls, Nicola's and New Germany.

ERADICATION

SURVEYS

PREERADICATION SURVEY

During 1939 preeradication survey work was carried on in all of the States actively conducting white pine blister rust operations. Since a definite division has not been ascertained between preeradication survey, Ribes eradication and checking, there is bound to be considerable overlapping of these activities. This has been more or less true in the case of Maryland and several other States where preeradication surveys were completed or nearly completed prior to 1939 but where post checks were carried on and new pine maps made in order to correct certain errors on the old maps and at the same time to give a Ribes distribution map. In some of the other States preeradication work has in great measure been confined to revising old area maps and working towards a uniform system of building up a permanent record and map system. This is important since the time is now ripe to take cognizance of the present control situation in the Southern Appalachian States by following several definite procedures, namely:

1. Completing all survey work in the field.
2. Romping areas where needed. (This is especially true on Ribes eradication areas where no maps were originally made or where the old maps are obviously in error.)
3. Surveying and mapping old areas which under the present standard of priority (priority here based on number of stems per acre) are, or may be worth protecting.
4. Revising all old County pine area maps and records so as to arrive at a definite and fairly accurate pine acreage figure.

5. Building up a permanent record and map system for the purpose of guiding future control work.

Following is a brief summary of preeradication survey activities by States in 1939:

DELAWARE

The bulk of the survey work in Delaware in 1939 was centered in and around Kent and New Castle Counties, the survey being confined mainly to the location of valuable ornamental white pines, white pine plantations, the proximity of cultivated Ribes and contacting owners in view of obtaining permission to eradicate such Ribes when located within the protective zone of the white pine. The most intensive work of course has been confined, as established by the Delaware State Board of Agriculture, to the control area in the upper part of New Castle County. Although additional white pine areas may be located in the southern portion of the State it is believed that the survey work is now practically completed. In 1939 a total of 2,946 acres were surveyed, 2,637 acres on private lands and 309 acres on State lands. A total of 130 - 8-hour man-days were expended at a cost of $579.50 on survey work in Delaware in 1939.

GEORGIA

During 1939 the grid system of survey has been employed in covering a total of 93,087 acres including white pine and protective zone. Although approximately 90 per cent of the survey work accomplished was within the Chattahoochee National Forest boundary only a little more than 17 per cent was on Federally-owned land, the remainder being in private ownership. Much of the privately-owned land surveyed will undoubtely be optioned and ultimately purchased by the Government. Although the control area incorporated

twenty three counties in Northern Georgia the best white pine-growing section lies in eight counties, namely; Murray, Fannin, Gilmer, Union, Towns, Rabun, Lumpkin and White.

Prior to November, 1938 the white pine survey work in Georgia was of a more emperical nature, mainly consisting of rough overlays on old U. S. G. S. quadrangle maps. In November, 1938, systematic surveys were started in Murray County and by December, 1939 crews were working in Murray, Fannin and Gilmer Counties. The ultimate plan is to complete preeradication surveys also in Rabun, Union, Towns, Pickens and possibly Lumpkin and White Counties.

KENTUCKY

In 1939, survey work in Kentucky consisted mainly of inspecting white pine plantations established by the Soil Conservation Service and United States Forest Service. Several native white pine stands in the Cumberland Narional Forest were also scouted and mapped. Although a good deal of work was done in 1934 no definite systematic survey of white pine was made, the acreage of pine being estimated and overlayed on old U. S. G. S. quadrangle maps. In 1939 the United States Forest Service offered to include, for our information, white pine counts in all age and size classes in their timber sales survey and also to note any Ribes found. This cooperation is greatly appreciated and eventually we should have some excellent maps of the white pine-growing counties in the Cumberland National Forest.

MARYLAND

Very little initial survey work remains to be done in Maryland such work being better than 98 per cent complete. In 1939 706 acres were mapped for the purpose of setting up a control area to protect 34 acres of white pine. According to Mr. Yost an estimated control acreage of

35,511 acres remains unworked because it incorporates low priority pine. At the present time however, old pine areas are being post checked and old pine area maps revised where obvious errors in mapping were originally made.

NORTH CAROLINA

During 1939 a total of 94,749 control acres were surveyed and mapped using the grid system of survey. This acreage includes work in Haywood, Buncombe, Mitchell, Avery and Watauga Counties. Prior to December 1938, all mapping was done by the "Spot Method". That is, an estimate of the white pine acreage was on an emperical basis. Some white pine count plots were taken however but the survey mainly consisted in searching for Ribes. Because many early records were not accurately kept and due to the fact that several agents would work in a single county at different times a good deal of overlapping of control acreages occurred. This is now being corrected by overlaying grids on all of the old County pine area maps, determining definite control zones and revising old pine area record sheets accordingly. Hardly any of the acreage surveyed to date can be entered as initial work since previous estimates have been entered in the records. In fact, when the revising of records is complete the final control acreage figure for the State will no doubt be less than what is now reported.

The strip method of survey as applied to the grid system has in several cases located Ribes which were not previously thought to exist according to Mr. Teague.

According to Mr. Teague's recommendations, preeradication survey work should be completed in Haywood, Madison, Mitchell, Avery, Watauga and Ashe Counties by 1941 providing funds are sufficient to carry on this type of work. Haywood, Mitchell and Avery Counties should be

finished early in 1940.

Mr. Teague, has received splendid cooperation from National Park and National Forest officials with the result that a considerable amount of control work has been accomplished, both in the Great Smoky National Park and in the Pisgah National Forest.

TENNESSEE

Approximately 85 per cent of the preeradication survey work in Tennessee was conducted in Scott County in the Cumberland Mountain during 1939. The remainder of the survey work was carried on in Carter, Unicoi and Polk Counties.

A total of 95,763 control acres were covered by preeradication surveys emoracing an area of 53,685 acres of white pine worth protecting. According to Mr. Tanksley's estimate, approximately 200,000 acres yet remain to be surveyed and mapped in Tennessee. If funds are available all preeradication survey work can probably be completed by 1941.

VIRGINIA

Various systems of survey methods have been used in Virginia, including the "Spot Method," Tennessee system, plot and traverse system and lately the grid system. As in several other States, numerous pine areas are in need of remapping since Mr. Luce has stated he is not at all satisfied with many of his old pine area records and maps in that they do not give a true picture of conditions in regard to the extent of white pine, Ribes locations and the association of white pine and Ribes. During 1939 a total of 67,127 control acres were surveyed and mapped in Virginia, most of the work being done in February and March in Rockingham, Augusta, Albemarle, Grayson, Smyth, Wythe and Highland Counties. Almost all of the white pine located, averaged

better than 50 stems per acre with approximately 23,000 acres of white pine worth protecting.

In 1940, it is planned to conduct surveys, using the grid system, in the Shenandoah National Park in order to establish once and for all definite control zones for the numerous white pine areas located in the Park.

WEST VIRGINIA

A good deal of preeradication survey work was completed in West Virginia during 1939 with a total of 157,394 control areas mapped embracing 58,001 acres of white pine worth protecting. Of the total acreage surveyed, 54,754 acres were on Federal land, 1,555 acres on State land and 101,685 on Private land. According to Dr. Ashcroft's estimate approximately 98 per cent initial Ribes eradication work in West Virginia has been completed on the control acreage surveyed and mapped.

On the following page is a table giving a statistical summary of preeradication survey work accomplished in the Southern Appalachian States from 1918-1939 inclusive.

ERADICATION SUMMARY, BY STATES
1918-1939 Inclusive

State	Estimated Control Acreage	Control Acres Surveyed and Mapped	Acres W.P. Worth Protecting	Net Control Acre W'kd. (crew,scout,B.O.)	Percent Acres W'kd.	Survey 8-hr. man-days	Survey Cost per Acre
Delaware	4,123	4,099	150	4,022	98	410	0.41
D. of C.	1,875	1,875	25	1,875	100	(1)	(2)
Georgia	900,000	840,012	400,000	668,186	75	7,117	0.03
Kentucky	67,178	67,178	62,417	67,178	100	(1)	(2)
Maryland	250,000	207,946	77,608	172,453	70	1,370	0.05
N. Carolina	2,500,000	2,346,016	1,179,903	2,484,834	(3)	23,217	0.02
S. Carolina	29,635	29,635	15,137	29,635	100	(4) 4	
Tennessee	799,210	571,522	439,610	629,111	79	21,357	0.09
Virginia	700,000	676,501	256,769	603,340	86	10,922	0.05
W. Virginia	675,000	663,664	245,807	555,594	82	15,525	0.05
GRAND TOTAL	5,927,021	5,408,448	2,677,426	5,216,228	88	79,922	0.042

(1) Survey time charged to Eradication
(2) Costs charged to Supervision
(3) Adjustments in acreage figures to be made
(4) Practically all man-days charged to Ribes eradication
(Note:) Percent acres worked based on Estimated Control acres.

As can be seen from the foregoing table, nearly 90 per cent of the estimated control acreage in the Region has been initially worked, either by crew, scout or "block cut". Since the control acreage shown for North Carolina is known to be too high, the actual acreage surveyed and mapped will more or less tend to equal the estimated control acreage figure after the North Carolina adjustments have been made providing no great abundance of untouched white pine is located in the meantime.

SURVEY SYSTEMS USED

Since blister rust control operations started in the Southern Appalachian States various systems of preeradication surveys have been used. Not knowing the extent and distribution of wild Ribes, efforts were early confined to searching out likely spots for Ribes. When the bushes were located an estimate was made as to the percentage of white pine present and if such white pine appeared worthy of protection the Ribes were eradicated. Early survey work then was more or less tied up with Ribes eradication, detailed maps only being made for white pine areas containing Ribes. Where no Ribes were found an estimate was made of the number of acres of white pine, a control zone figures but no map made. White pine locations were however, roughly plotted on old U. S. G. S. quadrangle maps. As new locations of Ribes areas became more difficult to find it became necessary to use a more intensive system of survey so that the more remote could be systematically covered. The first systematic method used was developed by Messrs. Tanksley and Lane in Tennessee. The Tennessee system is explained briefly as follows:

Preliminary surveys are first conducted in a county to determine a likely control point for starting the survey. This is determined by the apparent amount of white pine present, accessibility by roads and trails and the amount of labor available. Mr. Tanksley is fortunate in having Tennessee Valley Authority aerial survey maps for all of the white pine growing counties in Tennessee. These maps are used as base maps in guiding the activities of the control survey crews and the mapping crews. After a starting point is located the control survey crew, usually consisting of six men, run out base lines east

and west or north and south, spacing the base lines from one to three miles apart according to topographic conditions. Stakes are driven every ten chains along the base lines for tie-in points. For the purpose of more accurate ties-ins the areas are now broken up into smaller units, by running intermediate control lines one mile apart and working mile square units.

The type mapper is assisted by four scouts. White pine stem counts are taken and type lines are sketched in along the base lines and on strips run every ten chains between base lines. Main topographic features are sketched on the field map from T. V. A. maps before the field type mapping begins. The following two pages show respectively a sample type legend sheet and field mapping sheet as used in the Tennessee system.

The Traverse and Plot System:

Another system of conducting preeradication surveys as extensively used in West Virginis is the so-called "Traverse and Plot System". In brief, this system consists of using United States Geological Survey maps for general referance and in locating white pine areas as determined from preliminary surveys. Since the field map used is drawn to a scale of 8 inches to the mile a unique method is being worked out by Mr. Welch whereas portions of the small scale U. S. G. S. quadrangle maps can be projected on a screen by means of a "Jectoscope" to the desired scale of 8 inches to the mile. At the present time however the U.S.G.S. maps are blocked off in mile squares and subdivided so as to give 64 separate blocks representing 10 acres each. Each of these blocks is then enlarged on cross section paper to the desired scale (one square inch) and then combined to make the final base map on a

LEGEND USED IN MAPPING IN TENNESSEE
(Revised Dec. 14, 1937)

Colors to indicate Density of Pine According to Composition of Stand:

Very Dense (Pure Pine - 80% and up) ----------Blue

Dense (50% to 80%)----------Green

Medium (20% to 50%)----------Red

Thin (5% to 20%)----------Orange

Very Thin (Scattered - Below 5%)----------Yellow

Alphabetical Letters to Denote D. B. H.

a--- pine below 4 in. D.B.H.

b--- pine 4 in. to 12 in. D. B. H.

c--- pine 12 in. and over D. B. H.

Classes of Trees per acre:

1 ---Below 50 trees per acre.

2 ---50 to 99 trees per acre.

3 ---100 to 399 trees per acre.

4 ---400 to 999 trees per acre.

5 ---1000 and over trees per acre.

Area which has been:

Scouted is cross-hatched thus----------

Initially Eradicated is cross-hatched thus----------

Re-Eradicates is cross-hatched thus ----------

Areas with less than 5% pine and containing Ribes are marked thus --

Areas with more than 5% pine and containing uneradicated Ribes are marked thus ----------

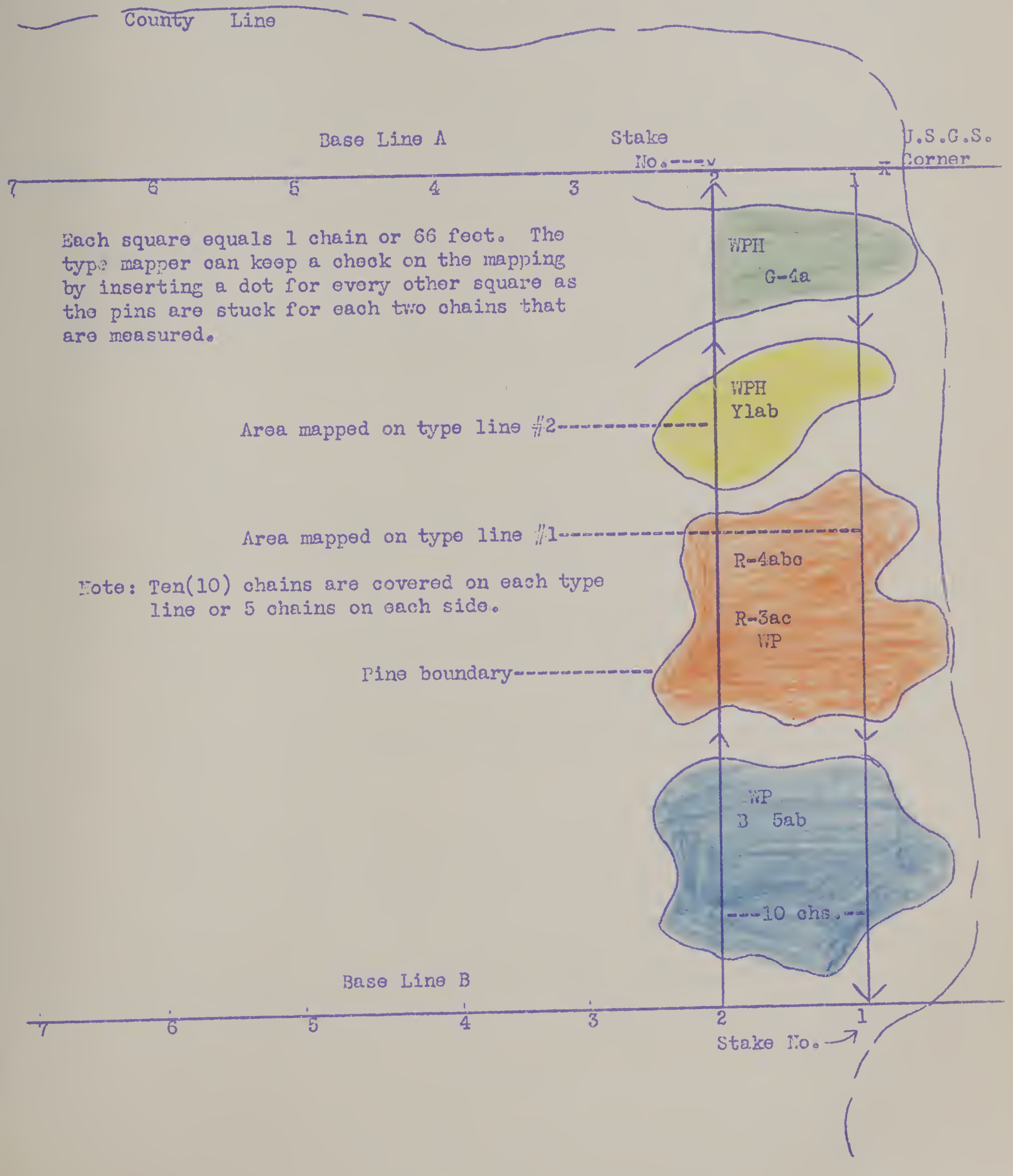
Boundaries around timbered areas are marked in BLACK
Boundaries between White Pine and Hardwood areas are marked in RED
Boundaries between White Pine Areas of different densities (According to composition) are Marked in BROKEN LINES with GREEN.
Protective Zone Boundaries are marked in BROKEN LINES with RED
Boundaries between National Forest and Private Lands are marked in solid GREEN LINES

WP equals White Pine
H equals Hardwoods
WPH equals mixed stands of White Pine and Hardwood.
Pine Area numbers are placed inside of a circle ----(3)

TENNESSEE SAMPLE OF FIELD MAPPING SHEET

The scale used on these sheets should be the same as the scale of the final base map. It is possible to use the same scale by letting each small square equal 1 chain, 2 chains, etc. The map data is transferred to the large county unit map (final copy) as the sheets are finished.

Note: The actual field map is made on graph paper marked off in one inch squares and subdivided in tenths.



scale of 8" to the mile. As in the Tennessee system each mapper is equipped with a field base map showing all of the main topographic features.

The preeradication survey crew consists of nine men broken up into two units. One unit of 5 men is called the "Mapping" crew while the other, with 4 men, is called the "Examining" crew. The "Mapping" crew traverses the pine area and plots the boundaries on the map, plots in any important features not shown on the enlarged U.S.G.S. map, interviews pine owners and keeps record of all proceedings. The "examining" crew make all white pine counts, look for Ribes, and note any features which may be of importance to the eradication work. Pine and Ribes counts are made on two per cent of each area surveyed. The following page is a sample preeradication survey map as completed in the field. The map also gives the type of legend used.

The Grid System:

The grid system of survey is now being used in Georgia, North Carolina and Virginia. Certain modifications of the grid system have also been applied to the surveys used in Tennessee, West Virginia and Maryland; mainly in the method of breaking areas up into mile square units, and using the continuous strip plot system of taking white pine and ribes counts.

In brief, the grid system of survey included the following main steps:

1 - Base Grid Map;

Obtaining a good county map, preferably to a scale of one inch to the mile and blocking it off in mile square grids after a permanent control point has been located and established in the field. The primary base control line will be started from this corner. The county map thus grided is called the "Base Grid Map."

LEGEND

Boundary of pine area---
Ribes:
Wild-----
Cultivated----
Protecting zone boundary---
Permanent stream---
Road-----
Trail---
Railroad---
Cultivated field---- Fld.
Pasture---- Pas.
Hardwood---- Hd.
House----

WEST VIRGINIA

Showing the Preeradication Survey

Map Completed

White Pine Blistor Rust Control
Pine Lot No. 17
Bluefield Quadrangle
Mercer County
West Virginia

Scale - 8 inches equals 1 mile
Field map by E.E. Gwynne, Foreman
Copy By R.W. Welch
Surveyed 12/16/38
Acres Pine - 84
Acres Control Area - 331

N

Mile to Keglay
R.R.
V'G'N
Creek
Blacklick
Kemp Bailey
Barn
Branch
Hd.
Fld.
Fld.
Carl Bailey
Ross Branch
Hd.
Fld.
Pas.
McClaugherty
Pts.
21
2 Miles to Princeton

R. W. Welch
3/9/1940

2 - Blocks:

Dividing the base grid map off into blocks containing 48 mile square grids each. The blocks are outlined in red or some other suitable color so as to make them stand out. Just as each grid is designated by a letter and a numeral as (Grid I-19) so are the blocks designated in a county by numbering consecutively from east to west and west to east with block number one falling in the northeast and the last block falling in the southwest.

3 - Field Work:

The field work is broken up into two parts, the "Control Survey" crew and the "mapping" crew. The control survey crew, consisting of three to five men, run control lines one mile apart, setting tie-in stakes every five chains. The mapping crew consists of two men, a compassman who also paces, and the mapper. The field map is entirely made in the field including all main topographical features. The map is made to a scale of 8 inches to the mile. Map strips are run 10 chains apart, each strip being 8- chains long and $\frac{1}{4}$ chain wide. Eight strips are run in each grid which gives a $2\frac{1}{2}$ per cent coverage. White Pine and Ribes are recorded by one chain transects and summarized on the data sheet by five chain transects. The white pine and Ribes counts are recorded on the map also by five chain transects and the good pine (fifty and more stems per acre) can then be delimited by a type line with little or no guess work.

4 - Office Work;

In the office the maps are examined for obvious errors. If none are found the pine acreages are planimetered and a pre-eradication Report (Form AP-1) is made up. The original field map is inked and colored according to the legend, and after copies have been made, is filed away with the original field data sheets attached. All data is then transferred to a two inch to the mile Progress Map Sheet (Form AP-10) which contains 48 square miles. Each progress map represents one block on the base grid map and is numbered accordingly. The following three pages give samples of a completed field map, a preeradication report, and a progress map sheet. The field map shows the white pine averaging better than 50 stems per acre in green. The cross hatching indicates wild Ribes locations. In the field the location of Ribes areas are outlined in brown crayon. The progress map has been reduced to a scale of one inch to the mile for purpose of illustration. It will be noted that Grid I-19 as illustrated, falls in the northwest grid of block No. 1 as supposedly laid off on the base grid map.

Conclusion

No matter what type of survey system is used, the main objective is to locate and designate as accurately as possible on maps and record sheets, white pine and Ribes areas so that a definite work plan can be made up for the purpose of future control. Without adequate maps and records to carry on maintenance, much time, labor and money can

Form AP-9

Grid No. I-19

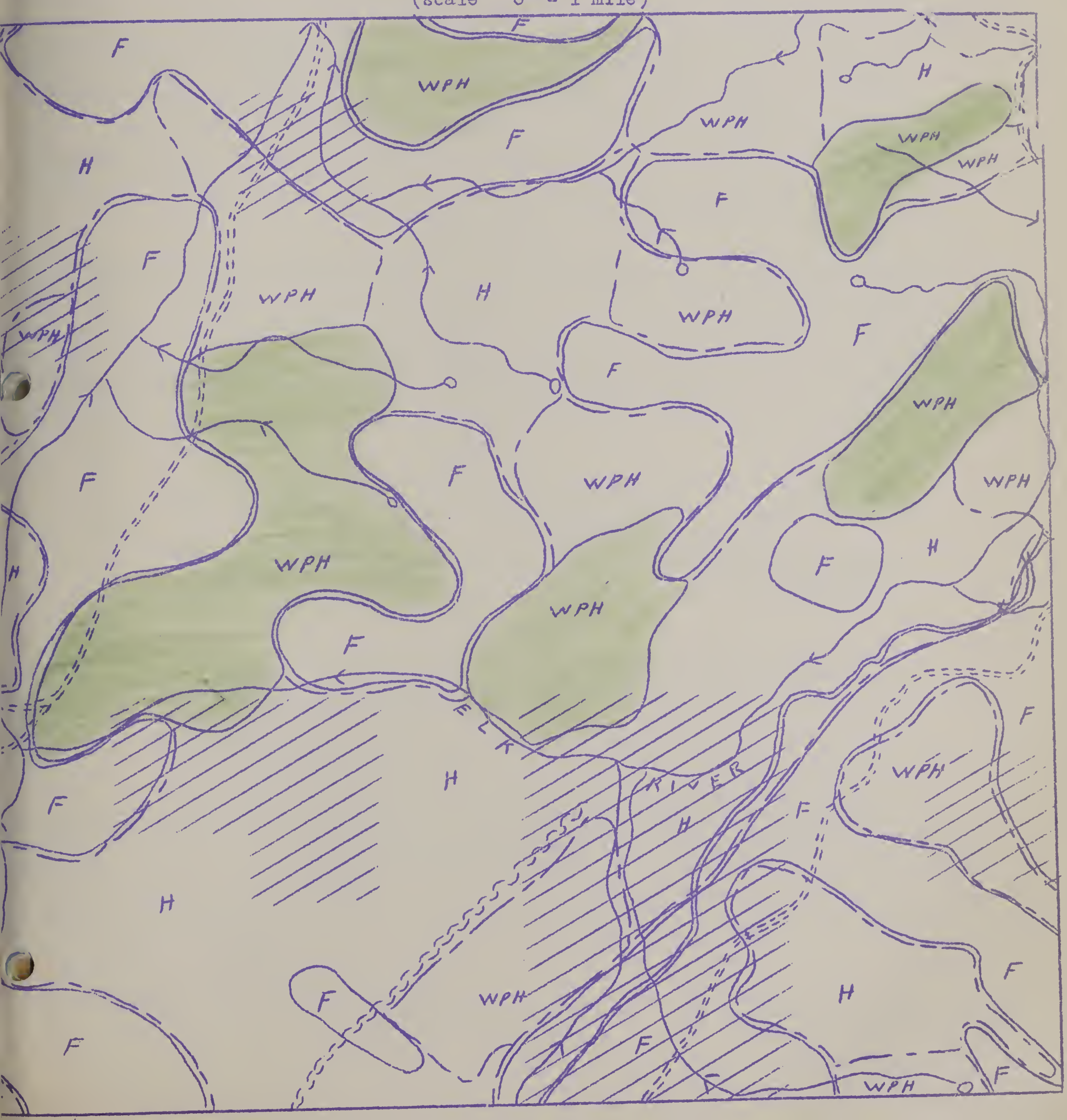
PRE-ERADICATION SURVEY MAP

State: N. Carolina County: Avery Quadrangle: Cramberry

Owner: Private Address: Pine Area No. Elk River

Mapped By: Holloway Date: 12/[illegible]6/ 1939

(scale - 8" = 1 mile)



Form AP-1 PREERADICATION REPORT 115

Pine Area No. _____

Grid Nos. I - 19

Elk River

State: N. Carolina County: Avery Quadrangle: Cranberry Forest: _____

Owner: Private Address: _____ Forest District: _____

Acres White Pine Worth Protecting; Native: 167 Planted: _____ Total: 167

SURVEY DATA

Acres Mapped	Acres Pine (over 50 per acre	Acres Pine (less 50 per acre	Total Acres Pine	Acres to Work	Acres Scat. Pine not Receiving Protection.	Man Hours Survey	Cost of Survey
640	91	96	187	598	20	64	19.20

76 Acres Will fall within protective zone

CONTROL DATA

Estimate For Ribes Eradication					Ribes Per Acre			Cultivated Bushes	
Acres To Work				Man Hours of Labor	Crew	Scout	Tot.	No.of Properties inspected.	No. of Bushes Located
Crew	Scout	B. O.	Total						
115	483	-	598	700	10		10	-	-

STAND DATA

Per Cent W.P. By Diameter Cl.			Average No. of White Pine Per Acre		Priority
0-4" DBH	4-12"DBH	over 12"DBH	Native	Planted	
81	16	3	27		~~1~~ 2 ~~3~~ 4-

INFECTION DATA

Infection Discovered				Stage of Infection on Pine		
Date	On Ribes	On Pine	Discovered By	Incipient	Pycnial	Fruiting

Location of Pine Area: Elk River 1 mile west of Heaton; Best Pine Near Elk Falls road crossing.

Eradication Hazards: None

Elevation: 3200'

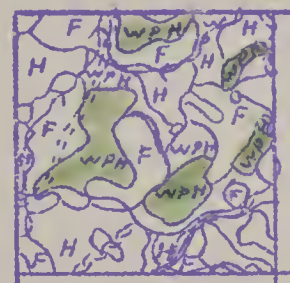
Control Data Estimated By: Whitman (name) Agent (Title) Date: 12/16 (month) 1939 (year)

Form AP-10

Block No. 1

PROGRESS MAP

State: N. Carolina County: Avery Year: 1939



19

18

17

16

15

14

GRID NUMERALS ←

I J K L M N O P

GRID LETTERS →

116

be wasted. It is therefore recommended that during the next two years (1940 and 1941) all efforts be made to push initial survey work to completion, to resurvey all areas where adequate maps are lacking or are greatly in error, to revise all old pine area record sheets where needed and to start building up a uniform permanent record system for the Region as a whole.

J. Curtis Ball

April 27, 1940

PRIVATE COOPERATION IN CONTROL WORK

in 1939

Delaware

The Pine Grove Nursery at Wyoming in Kent County, Delaware destroyed 40 red currants on the nursery grounds on account of the blister rust control work to safeguard their white pines.

Georgia

Mr. Zimmer writes that cooperation from the public at large was very good during 1939. Interest in fair exhibits and in pamphlets and posters distributed has been keen, and a number of persons have furnished information regarding the location of Ribes.

Maryland

Mr. W. M. Early, Mt. Lake Park, Maryland stated to Mr. Yost that he had destroyed all of his currants and gooseberries as the result of a newspaper article. The eradication work was completed by Mr. Bruce Kisner who has been seasonally employed by the Department of Agriculture, and also works as Mr. Healy's gardener. Mr. Kisner also cut several cankers from white pine trees last year as well as during 1939.

North Carolina

The Robbins Nursery at Linville, N. C. furnished 16 hours of labor in connection with scouting for and eradicating Ribes near their nursery during the week of August 12, 1939.

Virginia

Ninety-one Girl Scouts from the District of Columbia camping at Camp May Flather worked 7 different days during July and August on pine Area 8-F, Skidmore on the George Washington Nation Forest above Mt. Solon. They destroyed 840 Ribes bushes on 16 acres of land putting in 276 hours.

Virginia (continued)

This is the third year that the Girl Scouts from Camp May Flather have assisted in Ribes eradication on the George Washington National Forest.

There were two groups of boy scouts, one from Charlottesville, Virginia, who pulled 254 wild bushes on 7 acres of land along Skyland Drive in the Shenandoah National Park putting in 4 days of work; and a group of 3 boys and 2 adults from the Bear Trail Camp run by Mr. Withers, who cut cankers on a few infected pine trees in the park, and who worked 20 acres, pulling 112 bushes, putting in a total of 27 hours of work.

Virginia is the only State in the District in which we have been able to enlist the cooperation of boys and girls of scount age in eradication work.

Summary of Cooperation

	Number	Bushes	Acres
Girl Scouts	91	840	16
Boy Scouts	20	254	7
Boys of Bear Trail Camp	10	112	20
	121	1206	43

C O O P E R A T I O N

July 5, 1939

Mr. M. S. Yeomans,
State Entomologist
Georgia State Board of Entomology
Atlanta, Georgia

Dear Mr. Yeomans:

The Memorandum of Agreement between this Bureau and the Georgia State Board of Entomology, concerning cooperative work in controlling white pine blister rust, contains a provision for renewal from year to year upon mutual consent of the cooperating agencies.

In order to obviate the necessity of routine year to year renewals in the future, the Bureau suggests that this agreement be amended by substituting for paragraph III the following:

> "This memorandum of agreement shall continue indefinitely unless modified or discontinued by common consent. Requests for termination or any major changes shall be submitted to the other parties for consideration not less than 90 days in advance of the effective date desired."

and by adding a new paragraph VI as follows:

> "This memorandum of agreement is to define in general terms the basis on which the agencies concerned will cooperate, and does not constitute a financial obligation to serve as a basis for expenditures. Any and all expenditures from Federal funds in the Department of Agriculture made in conformity with the plans outlined in this memorandum of agreement must be in accord with Department Rules and Regulations, and in each instance based upon appropriate finance papers, such as lease, contract, requisition, letter of authorization, etc. Expenditures made by the Georgia State Board of Entomology will be in accord with its rules and regulations."

If the amending of this agreement as above outlined meets with your approval, will you please so indicate by signing and returning the carbon copy of this letter, retaining the other copy for your files.

Very truly yours,

/s/ Avery S. Hoyt
Acting Chief of Bureau

Concurred in: M. S. Yeomans
State Entomologist, Georgia
State Board of Entomology

July 5, 1939

State Forester, F. W. Besley
Maryland Department of Forestry
1411 Fidelity Building,
Baltimore, Maryland

Dear Mr. Besley:

The Memorandum of Agreement between this Bureau and the Maryland Department of Forestry, concerning cooperative work in controlling white pine blister rust, contains a provision for renewal from year to year upon mutual consent of the cooperating agencies.

In order to obviate the necessity of rountine year to year renewals in the future, the Bureau suggests that this agreement be amended by substituting for paragraph III the following:

> "This memorandum of agreement shall continue indefinitely unless modified or discontinued by common consent. Requests for termination or any major changes shall be submitted to the other parties for consideration not loss than 90 days in advance of the effective date desired."

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If the amending of this agreement as above outlined meets with your approval, will you please so indicate by signing and returning the carbon copy of this letter, retaining the other copy for your files.

Very truly yours,

/s/ Avery S. Hoyt
Acting Chief of Bureau

Enclosure
Concurred in: F. W. Besley
State Forester, Maryland
Department of Forestry

July 5, 1939

Mr. W. Kerr Scott, Commissioner,
North Carolina Department of Agriculture,
Raleigh, North Carolina

Dear Mr. Scott:

The Memorandum of Agreement between this Bureau and the North Carolina Department of Agriculture, concerning cooperative work in controlling white pine blister rust, contains a provision for renewal from year to year upon mutual consent of the cooperating agencies.

In order to obviate the necessity of routine year to year renewals in the future, the Bureau suggests that this agreement be amended by substituting for paragraph III the following:

> "This memorandum of agreement shall continue indefinitely unless modified or discontinued by common consent. Requests for termination or any major changes shall be submitted to the other parties for consideration not less than 90 days in advance of the effective date desired."

and by adding a new paragraph VI as follows:

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If the amending of this agreement as above outlined meets with your approval, will you please so indicate by signing and returning the carbon copy of this letter, retaining the other copy for your files.

Very truly yours,

/s/ Avery S. Hoyt
Acting Chief of Bureau

Enclosure
Concurred in: W. Kerr Scott
Commissioner, North Carolina Department of Agriculture

July 5, 1939

Mr. Sam F. Brewster, Commissioner,
Tennessee Department of Conservation,
Nashville, Tennessee

Dear Commissioner Brewster:

The Memorandum of Agreement between this Bureau and the Tennessee Department of Agticulture, concerning cooperative work in controlling white pine blister rust, contains a provision for renewal from year to year upon mutual consent of the cooperating agencies.

In order to obviate the necessity of routine year to year renewals in the future, the Bureau suggests that this agreement be amended by substituting for paragraph III the following:

> "This memorandum of agreement shall continue indefinitely unless modified or discontinued by common consent. Requests for termination or any major changes shall be submitted to the other parties for consideration not less than 90 days in advance of the effective date desired."

and by adding a new paragraph VI as follows:

> "This memorandum of agreement is to define in general terms the basis on which the agencies concerned will cooperate, and does not constitute a financial obligation to serve as a basis for expenditures. Any and all expenditures from Federal funds in the Department of Agriculture made in conformity with the plans outlined in this memorandum of agreement must be in accord with Department Rules and Regulations, and in each instance based upon appropriate finance papers, such as lease, contract, requisition, letter of authorization, etc. Expenditures made by the Tennessee Department of Conservation will be in accord with its rules and regulations."

If the amending of this agreement as above outlined meets with your approval, will you please so indicate by signing and returning the carbon copy of this letter, retaining the other copy for your files.

Very truly yours,

/s/ Avery S. Hoyt
Acting Chief of Bureau

Enclosure
Concurred in: J. Charles Poe
Commissioner, Tennessee
Department of Conservation

July 5, 1939

State Forester F. C. Pederson,
Virginia Forest Service,
University, Virginia

Dear Mr. Pederson:

The Memorandum of Agreement between this Bureau and the Virginia Forest Service, concerning cooperative work in controlling white pine blister rust, contains a provision for renewal from year to year upon mutual consent of the cooperating agencies.

In order to obviate the necessity of routine year to year renewals in the future, the Bureau suggests that this agreement be amended by substituting for paragraph III the following:

> "This memorandum of agreement shall continue indefinitely unless modified or discontinued by common consent. Requests for termination or any major changes shall be submitted to the other parties for consideration not less than 90 days in advance of the effective date desired."

and by adding a new paragraph VI as follows:

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If the amending of this agreement as above outlined meets with your approval, will you please so indicate by signing and returning the carbon copy of this letter, retaining the other copy for your files.

Very truly yours,

/s/ Avery S. Hoyt
Acting Chief of Bureau

Enclosure
Concurred in: F. C. Pederson
State Forester, Virginia Forest Service

July 5, 1939

Commissioner H. W. Shawhan,
West Virginia Conservation Commission,
Charleston, West Virginia

Dear Commissioner Shawhan:

The Memorandum of Agreement between this Bureau and the West Virginia Conservation Commission, concerning cooperative work in controlling white pine blister rust, contains a provision for renewal from year to year upon mutual consent of the cooperating agencies.

In order to obviate the necessity of routine year to year renewals in the future, the Bureau suggests that this agreement be amended by substituting for paragraph III the following:

> "This memorandum of agreement shall continue indefinitely unless modified ordiscontinued by common consent. Requests for termination or any major changes shall be submitted to the other parties for consideration not less than 90 days in advance of the effective date desired."

and by adding a new paragraph VI as follows:

> "This memorandum of agreement is to define in general terms the basis on which the agencies concerned will cooperate, and does not constitute a financial obligation to serve as a basis for expenditures. Any and all expenditures from Federal funds in the Department of Agriculture made in conformity with the plans outlined in this memorandum of agreement must be in accord with Department Rules and Regulations, and in each instance based upon appropriate finance papers, such as lease, contract, requisition, letter of authorization, etc. Expenditures made by the West Virginia Conservation Commission will be in accord with its rules and regulations."

If the amending of this agreement as above outlined meets with your approval, will you please indicate by signing and returning the carbon copy of this letter, retaining the other copy for your files.

Very truly yours,

/s/ Avery S. Hoyt
Acting Chief of Bureau

Enclosure
Concurred in: H. W. Shawhan
Commissioner, West Virginia Conservation Commission

BREAKDOWN OF ESTIMATED COOPERATIVE FUNDS FOR FISCAL YEAR 1940 BLISTER RUST CONTROL

SOUTHERN APPALACHIAN STATES

As of July 1939

Region SAS	Amount of Available Funds				
	State Approp. for blister rust control	Allot. from other State Approp.	County and town Approp.	Cash from Private Coop.	Total Cash
Delaware					
Georgia		100			100
Maryland					
North Carolina	5,000				5,000
Tennessee	2,000 *				
Virginia		600			600
West Virginia		2000			2,000
Total	7,000	2700			9,700

(* Tennessee made its appropriation of $2,000 available November 1, 1939

	Estimated Value of Contributed Services				
	Nursery Inspection and law enforcement	Technical Service of State employees	Office Green-hours and laboratory space	Use of Office Equip.and survey records	Clerical Assistance
Delaware	125	100			
Georgia	120	250	260		100
Maryland	100	750	300	90	360
North Carolina	40	250	200	50	
Tennessee	120	250	800	120	210
Virginia	120	780	144		
West Virginia	100	120	300		
Total	725	2,500	2,004	260	670

	Estimated Value of Contributed Services				
	Use of trucks and field equip.	Labor Provided by cooperators	Cultivated Ribes Destroyed	Total Value of Contributed Services	Total Cash and Contributed Services
Delaware	25		50	300	300
Georgia				730	830
Maryland		50	10	1,660	1,660
North Carolina		25	500	1,065	6,065
Tennessee			3,000	4,500	6,500
Virginia		100	200	1,344	1,944
West Virginia			200	720	2,720
Totals	25	175	3,960	10,319	20,019

TRANSPORTATION

SUMMARY OF TRUCK ACCIDENTS DURING 1939

NORTH CAROLINA

February 17, 1939. 1935 Dodge ½-ton truck, USDA 42-882. Government driver - Charles Hampton. Government truck struck and slightly injured pedestrian. No injury claim entered. Our driver convicted of reckless driving and fined $25.00 plus costs. Case considered closed.

March 17, 1939. 1935 Dodge ½-ton truck, USDA A3-708. Government driver - Joter Grindstaff. Government truck met private truck on curve and slipped off shoulder of road. Accident considered unavoidable. No injuries. No damage to private truck. Slight repairs to Government truck paid for by the Federal and State projects. Case closed.

TENNESSEE

February 27, 1939. 1933 Dodge 1½-ton truck, USDA 62-009. Government driver - Alfred T. Grindstaff. A private truck caused our truck to strike a third vehicle. The slight damages inflicted on our truck and the third car were promptly paid for by the driver of the privately-owned truck, who accepted all responsibility for the accident. There were no injuries. Case closed.

VIRGINIA

June 2, 1939. Two 1935 Dodge ½-ton trucks, USDA A3-039 and USDA 64-959. Government drivers - Clarence R. Anderson and Fred W. Gilley, respectively. USDA 64-959 was almost completely demolished and USDA A3-039 was slightly damaged by a privately-owned truck. Responsibility for the accident was accepted by owner of the private truck and $180 paid to the government by his insurance company in complete settlement of damages. Seven of the men traveling in our trucks were slightly injured, such injuries consisting of bruises, scratches and general shakeup. First aid was not necessary, and all the men returned to work promptly. Case considered closed.

July 25, 1939. 1933 Chevrolet 1½-ton truck, USDA A5-657. Government driver - Leroy Seiver. Our truck brushed against a privately-owned car, causing only a scratch on the door latch of the latter. The accident was considered unavoidable. No repair cost was involved and no injuries sustained. Case closed.

July 29, 1939. 1939 Pontiac Sedan, USDA A6-534. Government driver - H. K. Cooper. Damage of approximately $200.00 was done to our car when it hit a truck parked on the highway. Accident considered unavoidable on our driver's part. Responsibility for accident accepted by owner of third car involved which was not damaged. Because of financial irresponsibility of this man the government paid for damages to our car. No claim was made by owner of the truck for slight damage inflicted by our car. The agent who accompanied our driver on trip sustained minor bruises and blow on nose, but no medical treatment was required. Case closed.

SUMMARY OF TRUCK ACCIDENTS DURING 1939

WEST VIRGINIA

October 28, 1939. 1936 Chevrolet delivery sedan. Government driver - J. M. Ashcroft. Slight damage to grill of our vehicle caused by bread tray falling from bakery truck. Owner of truck paid for grill repairs. No injuries. Case closed.

STATEMENT OF TRUCKS AND AUTOS IN USE IN
GEORGIA
1939

State	License No.	Serial No.	Engine No.	Capacity	Make & Kind	Year Model	Date Purchased	Speedometer Reading 12/31/39	Mileage in 1939	Cost per Mile	Total Cost for Cal. year
Georgia											
	A2-146	SFB111892	K57-39097	1/2 ton	Chev. Pick-up	1936	11/29/35	48987	5942	$0.037	$223.32
42817 now	A3-043	8072253	T-1225871	1/2 ton	Dodge "	1935	12/22/37	42154	13215	0.019	254.24
42824 "	A5-820	8072250	T-1225461	1/2 ton	Dodge " "	1935	12/22/37	33343	12224	0.022	273.34
	42897	8072487	T-1226369	" "	" " "	1935	"	56068	9850	0.025	250.13
	44417 (1)	6643	T-3738247	1 1/2 ton	Chev. Stake	1933	7/10/36	43652	-	-	-
	44421 (2)	9007	T-3853934	1 1/2 ton	" "	1933	7/10/36	45676	85	-	-
	44422	6390	T-3750443	1 1/2 ton	" "	1933	12/11/38	42183	3553	0.045	159.20
	62012	8072386	T-1225392	1/2 ton	Dodge Pick-up	1935	12/22/37	32392	2658	0.031	83.73
	A3-043 (3) 18		T-1472793		Ford Coupe	1935	12/18/38	30688	8405	0.019	161.95

(1) Sold for $51.00 on 10/16/39
(2) Sold for $56.00 on 10/16/39
(3) Traded in on purchase of Pontiac Sedan and License plates transferred to T-1225871

STATEMENT OF TRUCKS AND AUTOS IN USE IN
DELAWARE AND MARYLAND
1939

State	License No.	Serial No.	Engine No.	Capacity	Make & Kind	Year Model	Date Purchased	Speedometer Reading 12/31/39	Mileage in 1939	Cost per Mile	Total Cost for Cal. Year
Maryland & Delaware											
31-614 now	A6-890	8072368	T-1225318	1/2 ton	Dodge Pick-up	1935	12/27/37	37352	11411	$0.0097	$110.42
31-640 now	A6-889	8072326	T-1225413	1/2 ton	Dodge Pick-up	1935	12/27/37	29619	4368	0.0165	72.02
[illegible]-008 now	A6-888	6707	T-3738260	1 1/2 ton	Chev. Stake	1933	5/15/36	52051	4748	0.0268	127.40
31-989 now	A6-887	2HC116249	M-5728086	1/2 ton	Chev. DeLuxe	1936	2/15/38	56410	13988	0.011	154.90

STATEMENT OF TRUCKS AND AUTOS IN USE IN
NORTH CAROLINA
1939

State	License No.	Serial No.	Engine No.	Capacity	Make & Kind	Year Model	Date Purchased	Speedometer Reading 12/31/39	Mileage in 1939	Cost per Mile	Total Cost for C year	l.
N. Carolina												
	60-143	8FD012777	K-5742052	1/2 ton	Chev. Pick-	1933	12/28/35	42119	9731	$0.034	$334	81
42-882 now	A4-799	8072460	T-1224144	1/2 ton	Dodge " up	1935	2/21/38	38268	10093	0.019	195	98
	A2-579	8072324	T-1224180	1/2 ton	" " "	1935	2/21/38	34307	6845	0.029	198	40
	62-046	8072309	T-1225043	1/2 ton	Dodge "	1935	2/21/38	33172	3378	0.033	112	24
	A3-995	8072265	T-1225846	1/2 ton	Dodge "	1935	12/28/37	51058	7663	0.028	212	33
	A2-975	8072392	T-1225854	1/2 ton	" "	1935	12/28/37	45385	9221	0.021	195	12
	A2-974	8072243	T-1225986	1/2 ton	" "	1935	2/21/38	25296	9235	0.022	201	15
	A3-997	8072387	T-1226063	1/2 ton	" "	1935	2/21/38	25645	7092	0.015	1[illegible]	90
	A2-578	8072247	T-1226243	1/2 ton	" "	1935	12/28/37	35909	11286	0.019	221	63
	62-045	8072430	T-1226504	1/2 ton	" "	1935	2/21/38	22885	5738	0.026	151	91
	A3-994 (1)	6153	T-3719185	1/2 ton	Chev. Stake	1933	11/16/37	47599	855	0.037	31	52
	44-423 (2)	6193	T-3719338	1/2 ton	" "	1933	11/16/37	52966	646	0.065	41	80
	44-419	6535	T-3737187	1/2 ton	" "	1933	11/16/37	48734	4244	0.035	150	05
	A3-996	7025	T-3764138	1 1/2 ton	" "	1933	11/16/37	48207	7311	0.033	245	21

(1) Sold for $8.00 on 10/20/39
(2) Transferred to Tennessee in June, 1939.

STATEMENT OF TRUCKS AND AUTOS IN USE IN
TENNESSEE IN
1939

State	License Number	Serial Number	Engine Number	Capacity	Kind & Make	Year	Date Purchased	Speedometer Reading 12/31/39	Mileage in 1939	Cost per Mile	Total Cost for Cal. year
Tennessee	31-193	90D065663	T-3697763	1 1/2 ton	Chev. Stake	1937	6/17/36	62771	5324	$0.040	$215.39
	31-579	8072384	T-1224558	1/2 ton	Dodge Pick-	1938	2/24/38	53682	8717	0.020	174.62
42-863 now	A5-859	8072377	T-1225805	1/2 ton	" " up	1938	1/6/38	36595	7289	0.023	165.11
62-009 now	A5-855	8072294	T-1224490	1/2 ton	" " "	1938	1/4/38	39773	12921	0.019	256.45
31-840 now	A5-854	8072462	T-1222733	1/2 ton	" " "	1938	1/4/38	47086	4695	0.035	164.88
44-423 now	A5-857 (1)	6193	T-3719338	1/2 ton	Chev. Stake	1937	11/16/37	53482	516	0.078	40.39
	56-633	90D065591	T-3685041	1/2 ton	Chev. Pick-	1937	7/31/37	54055	5228	0.027	138.84
42-830 now	A5-856	8072498	T-1224546	1/2 ton	Dodge " up	1938	2/24/38	33528	7155	0.033	234.89
42-868 now	A5-853	8072426	T-1224768	" "	" " "	1938	2/24/38	29397	5707	0.022	126.23
62-047 now	A5-852	8072366	T-1225435	" "	" " "	1938	2/24/38	33567	3852	0.025	94.38
	62-044	8072432	T-1226168	" "	" " "	1938	2/24/38	32637	9200	0.022	201.24
	62-011	8072312	T-1224165	" "	" " "	1938	1/4/38	30040	9550	0.018	168.13
31-995 now	A5-858	2FC116598	M-5745617	Chev. DeLuxe Delivery		1938	2/17/38	46365	6693	0.017	113.30

(1) Transferred from N. C. in June 1939

STATEMENT OF TRUCKS AND AUTOS IN USE
IN VIRGINIA IN
1939

State	License Number	Serial Number	Engine Number	Capacity	Make & Kind	Year Model	Date Purchased	Speedometer Reading 12/31/39	Mileage in 1939	Cost per mile	Tot. Cost for Calender Year
Virginia											
34-958 now	A5-[illegible]	2FC116692	K-5745638	1/2 ton	Chev.	Pick-Up	2/17/38	50408	10984	0.016	179.91
31-644 now	A5-661	8072492	T-1222400	1/2 ton	Dodge	Pick-Up	2/21/38	23173	4993	0.022	109.09
42-864 now	A3-040	8072429	T-1224472	1/2 ton	"	"	12/27/37	42185	8415	0.016	134.44
31-895 now	A5-[illegible]	8072320	T-1224610	1/2 ton	"	"	2/21/38	18756	7506	0.015	112.82
	A3-042	8072404	T-1225119	1/2 ton	"	"	1/5/38	48777	9585	0.027	259.72
	64-950 (1)	8072305	T-1226187	1/2 ton	"	"	1/5/38	48861	6252	0.025	159.94
42-899 now	A5-664	8072389	T-1226496	1/2 ton	"	"	1/5/38	34889	13288	0.019	257.60
	A3-039	8072295-	T-1226499	1/2 ton	"	"	2/21/38	62762	7863	0.028	220.62
62-023 now	A3-041	8072424	T-1224697	1/2 ton	"	"	2/21/38	39455	10773	0.017	180.20
43-007 now	A5-657	6730	T-3719268	1 1/2 ton	Chev.	Stake	5/15/36	51670	5996	0.035	206.69
53-124 now	A5-660	27137	K-3716853	1/2 ton	Chev.	Pick-Up	5/24/37	66858	4871	0.024	118.52
	53-123 (2)	28559	K-3739047	1/2 ton	"	"	5/24/37	40411	5366	0.025	136.41
53-121 now	A5-662	5113	K-3772435	1/2 ton	"	"	5/24/37	41476	599	0.038	22.81
38-292 now	A5-655	14FB111783	K-5741849	1/2 ton	"	"	12/10/35	50912	12116	0.021	252.83
	A5-656	6515	K-3733902	1 1/2 ton	Chev.	Stake	7/2/36	37815	314	0.109	34.13

(1) Last truck reported in June - truck damaged in accident beyond use.
(2) This truck was sold by Board of Survey in Nov. 1939

STATEMENT OF TRUCKS AND AUTOS IN USE IN WEST VIRGINIA
IN 1939

State	License Number	Serial Number	Engine Number	Capacity	Make & Kind	Year Model	Date Purchased	Speedometer Reading 12/31/39	Mileage in 1939	Cost per Mile	Total Cost for Cal. Year
West Va.											
	53-122	36652	K-3848060	1/2 ton	Chev. Pick-up	1933	5/24/37	53839	1358	$0.038	$51.43
	31-951	2FC116793	M-5752877	1/2 ton	Chev. DeLuxe	1936	2/17/38	40698	9854	0.021	207.77
	42-831	8072248	T-1225423	1/2 ton	Dodge Pick-up	1935	1/5/38	39913	5289	0.027	141.09
	62-042	8072501	T-1224622	1/2 ton	" " "	1935	2/24/38	30052	5110	0.041	207.20
	62-010	8072406	T-1226758	1/2 ton	" " "	1935	1/5/38	32846	4534	0.029	132.79
	31-990	2FC116302	M-5728144	1/2 ton	Chev. Deluxe	1936	2/17/38	49839	7130	0.016	117.47
	31-950	2FC116663	M-5745710	1/2 ton	" "	1936	2/17/38	43084	6953	0.025	172.18
	31-970	2FC116661	M-5745721	1/2 ton	Chev. Sedan	1936	2/17/38	35125	3939	0.018	72.06
	42-899	8072365	T-1224492	1/2 ton	Dodge Pick-up	1935	1/10/38	22309	2666	0.024	63.20
	42-894	8072379	T-1225465	" "	" " "	1935	1/10/38	30101	3751	0.024	91.26
31-837 -	43-108	8072448	T-1225885	" "	" " "	1935	1/10/38	28106	3914	0.046	178.57
	44-416	6515	T-3733902	1 1/2 ton	Chev. Stake	1933	7/2/36	-	-	-	9.49
	43-109	6710	T-3855385	1 1/2 ton	" "	1933	7/24/37	36472	357	0.17	61.82
(1)	43-009	6731	T-3719311	1 1/2 ton	Chev. Stake	1933	5/5/36	56745	-	-	60.00

(1) Truck was stored at Union, West Virginia the entire year.

WHITE PINE

INITIALLY PROTECTED

SUMMARY OF WHITE PINE AREAS PROTECTED FROM

BLISTER RUST INITIALLY, BY OWNERSHIP

OF LANDS, IN ACRES - GEORGIA

1933 - 1939

Year	National Forests	Private and State	Total white pine acres
1933	7,422	739	8,161
1934	2,214	42240	44,454
1935	31,494	26205	57,699
1936	18,414	8586	27,000
1937	50,631	14025	64,656
1938	75,975	22450	98,425
1939	23,480	31323	54,803
	209,630	145568	355,198

There are not National Parks or other National lands in white pine section of the State.

SUMMARY OF WHITE PINE AREAS
Protected from Blister Rust Initially by Ownership
of Land, in Acres
KENTUCKY

Years	National Forests (1)	Non-Federal lands	Total all lands
1934-1938	14,314	47,933	62,247 (2)
1939	164	6	170 (3)
Total	14,478 (1)	47,939	62,417 (3)

(1) Data from J. C. Ball's Annual Report for Kentucky for 1939 - page 20

(2) My Annual report for 1938 omitted acreage of scattered pine.

(3) Data from Pierce's Annual Report - Southern Appalachian States for 1939 - page 6.

SUMMARY OF WHITE PINE AREAS PROTECTED FROM BLISTER RUST
INITIALLY, BY OWNERSHIP OF LANDS, IN ACRES - MARYLAND

1932 - 1939

Year	Federal Resettlement	State lands	Municipal lands	Private lands	Total non-federal	Total Federal State and municipal	Grand Total all lands: Good Pine Averaging 50 trees and over per acre	Scattered Pine Averaging less than 50 per acre	All Pine
1932		1,296	353G	55 G	537G	482 G	537		537
1933		18G	-	175 G 65 S	175 G 65 S	18 G	175	65	240
1934	180 G 85 S	7,146G 5,110S	-	24,003G 15,216S	31149 G 20326 S	7326 G 5195 S	31,329	20,411	51,740
1935	-	300G 100S		5,765G 4,560S	6065 G 4660 S	300 G 100 S	6,065	4,660	10,725
1936	70 G 20 S	330G			330 G	400 G 20 S	400	20	420
1937	175 G 15 S	63G	500 G 300 S	91G 280S	654 G 580 S	738 G 315 S	829	595	1,424
1938		340	24	416	780	364	403	377	780
1939		50G		11G 10S	61G 10S	71	61	10	71
Totals	545	13,586	1,177	50,647	65,392	15,329	39,799	26,138	65,937

SUMMARY OF WHITE PINE INITIALLY PROTECTED [illegible]
SLOW BLISTER RUST [illegible] 1938 to 1939, [illegible] acres

Revised

SOUTH CAROLINA

Year	National Forest	Total Federal lands	State and private lands	Total all white pine
1933	425	425	463	888
1934	1,375	1,375	4,027	5,402
1935	-	-	7,562	7,562
1938	275	275	1,010	1,285
Totals	2,075	2,075	13,062	15,137

SUMMARY OF WHITE PINE INITIALLY PROTECTED IN
TENNESSEE 1933 to 1939

Year	Natl Forest	Natl Park	Total Federal	State	Private	Total non-Federal	Grand Total All Lands
1933	4107	1825	5932				5932
1934	5936		5936		22703	22703	28639
1935					6157	6157	6157
1936	108		108		12700	12700	12808
1937	25125		25125		18872	18872	43997
1938	15283		15283	535	27232	27767	43050
1939	8440		8440		27195	27195	35635
Total	58999	1825	60824	535	114359	115394	176218

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SUMM ARK OF W HITE PINE AREAS PROTECTED FRO M BLISTER RUST INITIALLY
BY OWNERSHIP OF LAND, In Acres VIRGINIA

Year worked	National Forests	National Park	Total Federal lands	Private and State	Total white pine Acreage
1929	420	-	420	-	420
1930	530	-	530	-	530
1931	500	-	500	-	500
1932	402	-	402	545	947
1933	1,619	2,742	4,361	869	5,230
1934	1,486	2,309	3,795	18,119	21,914
1935	3,169	3,475	6,644	18,124	24,768
1936	91	507	598	29,400	29,998
1937	12,836	-	12,836	56,825	69,661
1938	9,964	-	9,964	18,662	28,626
1939	2,716	154	2,870	20,553	23,423
Totals	33,733	9,187	42,920	163,097	206,017

SUMMARY OF W HITE PINE AREAS PROTECTED INITIALLY IN WEST VIRGINIA
1934 - 1939 Inclusive (1) by Ownership of Lands

Year worked	National Forest(2)	State	Private	Total Non Federal	Grand Total all lands
1934	212	100	5,040	5,140	5,352
1935	928	0	11,254	11,254	12,182
1936	8,597	1,296	21,260	22,556	31,153
1937	16,627	2,086	45,408	47,494	64,121
1938	2,606	1,164	52,217	53,381	55,987
1939	16,598	-	27,702	27,702	44,300
Totals	45,568	4,646	162,881	167,527	213,095

(1) While 59 Acres of land were worked in 1932 and 1193 acres in 1933 the exact location of these areas was never made on maps, and since these lands were subsequently covered and accurately mapped, the record above stands with 1934. In this way duplication of areas is avoided.

(2) No other Federal land worked in West Virginia.

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TOPOGRAPHY

THE SOUTHERN APPALACHIANS

Scale 1:1,250,000

10 0 10 20 30 40 50 60 70 80 90 100 Mi

National Forests — National Parks — Indian Reservation

KNOXVILLE Cities with a population of more than 100,000
Roanoke . . . . . 50,000 to 100,000
Greenville . . . . . 25,000 - 50,000
Bluefield . . . . . 10,000 - 25,000
Williamson . . . . . 5,000 - 10,000
Logan . . . . . 2,500 - 5,000
Budman . . . . . less than 2,500

Railroads

Highways and main roads

Contour interval 500 feet
Conic equal-area projection

1933

WHITE PINE BLISTER RUST CONTROL

STATUS OF INITIAL CONTROL, BY COUNTIES, AS OF DECEMBER-1939

MARYLAND

HARFORD CO.-15%
BALTIMORE CO.-50%
HOWARD CO.-25%
MONTGOMERY CO.-15%.
ANNE ARUNDEL CO.-15%

DELAWARE

NEW CASTLE CO.-95%
KENT CO.-100%
SUSSEX CO.-100%

KENTUCKY

SIXTEEN COUNTIES NOT SHOWN ON MAP HAVE PLANTED WHITE PINE-9 OF WHICH ARE 100% INITIALLY WORKED.

LEGEND

COUNTIES 100% INITIALLY WORKED------
INITIAL WORK NOT COMPLETE---------- 50%

NOTE:-IN TENNESSEE 7 COUNTIES WORKED 100% DOWN TO 10% PINE.

U. S. DEPARTMENT OF AGRICULTURE

Report of

BLISTER RUST CONTROL IN THE ROCKY MOUNTAIN REGION, 1939

Henry D. Petrons
Senior Pathologist

and

Leiton E. Nelson
Associate Forester



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Status of Blister Rust Control Program on December 31, 1939

North Central Region

Blister Rust Conditions

Blister rust infection has now been found on either or both white pine and rives throughout the important white pine producing areas of the North Central Region. During 1939 blister rust was found on rives in 25 additional counties and on pines in 7. Pine infection has not, however, been found in Illinois or Indiana. Rives infection was found in 1939 for the first time in 10 counties of Iowa, 1 in Michigan, 2 in Minnesota, 12 in Ohio and 2 in Wisconsin. Pine infection was found for the first time in 1939 in 2 counties in Michigan, 2 in Minnesota, 2 in Ohio and 1 in Wisconsin.

White Pine

The acreage of white pine and planting sites in the North Central Region considered worth protecting is now 1,249,928. To protect this acreage will require working 2,119,005 acres of woodland area. The total acreage of white pine considered worth protecting increased approximately 100,000 acres over the figures given for 1938. This increase is due largely to an extensive pruning program carried out by state and federal agencies, as well as an increase in acreage of native white pine by natural reproduction, aided by favorable weather conditions.

The ownership of forest land is constantly changing, due to tax delinquency and acquisition by governmental agencies, making an accurate summary of ownership status almost impossible. The following tabulation may be considered indicative of the present white pine ownership in the North Central Region.

Federal Forest Service	687,021 acres	or 18.8%
Federal Indian Service	51,630 acres	or 4.1
Other Federal Lands	2,877 acres	or 0.2
State	269,669 acres	or 21.4
County and City	42,653 acres	or 3.3
Private	646,764 acres	or 51.2
Total	1,250,221 acres	or 100.0

A further breakdown of the total acreage of white pine and planting sites worth protecting is shown as follows:

Native white pine	1,120,198 acres
Planted white pine	74,730 acres
Approved white pine planting sites	63,905 acres
Total	1,258,928 acres

Pre-Qualification Survey: Data (as) made on 2,113,210 bales of US 32 [illegible] examined under [illegible]

Point of Control

The status of control at the end of 1978, according to records, is given as follows:

Acres T.C. and T.F.C.: work processing - --	1,215,278
Acres T.F. and T.F.F.: given varied workday-	730,747
Acres T.F. and T.F.F.: given normal overtime -	44,241
Acres T.F. and T.F.F.: given short working- -	3,204
Persons given limited working (T.F. normal working T.F.	

Planning Area Evaluations

During July a total of 1,500 A cases was actually examined for [illegible] the remaining 40 were immediately following these evaluations. Data sample showed only 847 bushels and 4.1 feet of life were available for the Region as a whole. Only 18 [illegible] [illegible] standard of 50 feet of life here per acre. Of the total acres [illegible] and damaged (240,870), 44.9% had 6 rows or less remaining after evaluation and 12.6% had from 6 to 11 feet of life even per acre after evaluation. Only 8.9% of the A/M [illegible] had [illegible] fully in the standard area of 12 feet of life even per acre. Approximately [illegible] [illegible] [illegible] [illegible] [illegible]

Summary Statistics

Evaluations made the evaluation [illegible] [illegible] [illegible] [illegible]

Responding to recently cleared fires (arranged from fewest to most):

U.S. Forest Service	7
U.S. Indian Service	1
U.S. Soil Conservation Service	6
State	12
Private	10
Total	36

Cultivated Crop Harvest Elimination

Initial cultivated block harvest elimination work was carried on in Iowa, Michigan and Wisconsin. A total of 3,947 man-days was spent to harvest 478,721 cords and destroy 7,778 habitat on 1,240 locations.

Seventy cultivated block harvest elimination work was carried on in Iowa, Virginia, Minnesota, Ohio and Tennessee. A total of 921,807 individuals was inspected and 2,613 nests removed from 690 locations. An analysis of the size and type of habitat found on wildlife work showed 847 habitat were old and eligible for wildlife credit. 20 farmers were awarding credit on 2 locations and 72 bushes were ignored found on 21 locations. In addition, 500 bushes were found to have been reclaimed on 42 locations. A total of 67,775 bushes was found on initial and re-check block harvest survey of which 16,700 bushes or 24.6% were found on the initial survey. Improvements of cultivated block harvests from previous years on 504 places, or 0.6%, were found on this current survey.

Since the inception of the cultivated block harvest elimination program, 272,778 bushes have been removed from 37,654 locations. The initial block harvest elimination program has been practically completed in the North Central Region. Research work is needing established to work wisely.

Recommendations for Future Work

It is recommended that:

(1) Pre-cultivation surveys be continued annually requiring the inventory of all unharvested native plum stands, and surveys be made of planted plum and plantings given to the road drivers.

(2) Weed control, both initial and growth, be continued in order to preserve all valuable shrubs plum stands or maintenance as rapidly as possible.

(3) Nursery availability work be continued to insure wide use plantings stock from good habitat type.

(4) Cultivated plant species which are considered to withstand this dangerous plant from Kenya plus growing areas of the region.

(6) A questionnaire be made of all areas given Letter, working four or more years ago to determine, for each area, whether research is needed or has been placed on maintenance.

Citrus

Citrus Root Conditions

During the calendar year 1939 an additional acreage of citrus groves in Lafourche and Terrebonne Parishes, approximately 21,415 acres planted to 24 thousand, and 76 citrus bushes on five hundred were examined without finding any infection. In Jefferson Parish 144 acres found to citrus in 10 localities of Jefferson Citrus. No infection was found on white plants.

White Fly

At the present time there are 2,054 acres of white fly and citrus rust mites varying according to District. Additional surveys of this area added each year in preference for another control, citrus and citrus-belt purposes. A small amount of plus is being used for reinvestigation.

The present condition of white fly is recorded as follows:

Upper - - -

Recommendations for Future Tests

[illegible] of white wine bitter rose should be continued to see if we can provide better protection for all wines while also [illegible] previously promoted and to keep pace with the consolidation of our supply. It is recommended that additional work be continued around wine grape producing parameters. Sampling for bitter rose detection factors should be continued, especially in connection with [illegible] testing [illegible].

Indiana

Whiting Area Construction

During 1955 an additional 6-inch water main was installed north from 129th to 141st Streets on Calumet Avenue, thence west on 141st Street to Baring, to Forsythe, to Joliet and to Oakley Boulevard in Hammond. In the Whiting area work was found to improved water pressure in the Standard Refinery. Three metalings were developed and 24 additional hydrants on water mains were also found.

Water Flow

The water pipe inventory in Indiana showed an increase from 4,100 acres in 1947 to 6,700 acres in 1954. The greater portion of this increase is made up of pipelines extending water service into rapidly developing residential and industrial areas.

The present inventory of water pipe in Indiana is:

Federal	313 acres or 4.6%
State	120 acres or 1.8%
Private	6,372 acres or 93.6%
Total	6,805 acres or 100.0%

Value of Leak Control

Acres of T.P. and N.P.F.C. worth protecting	6,492
Acres of T.P. and N.P.F.C. given initial coverage	4,977
Acres of T.P. and N.P.F.C. given second coverage	3,480
Percent given initial coverage (4.97) earned working	0.76

Survey Results

Four surveying companies approximately 317,000 pipe connections were given examination coverage during 1955. A total of 3,872 wild and 38 suspicious leaks were received from 2,120 acres of control area. This work was performed with an expenditure of 87 man-days of labor for supervision.

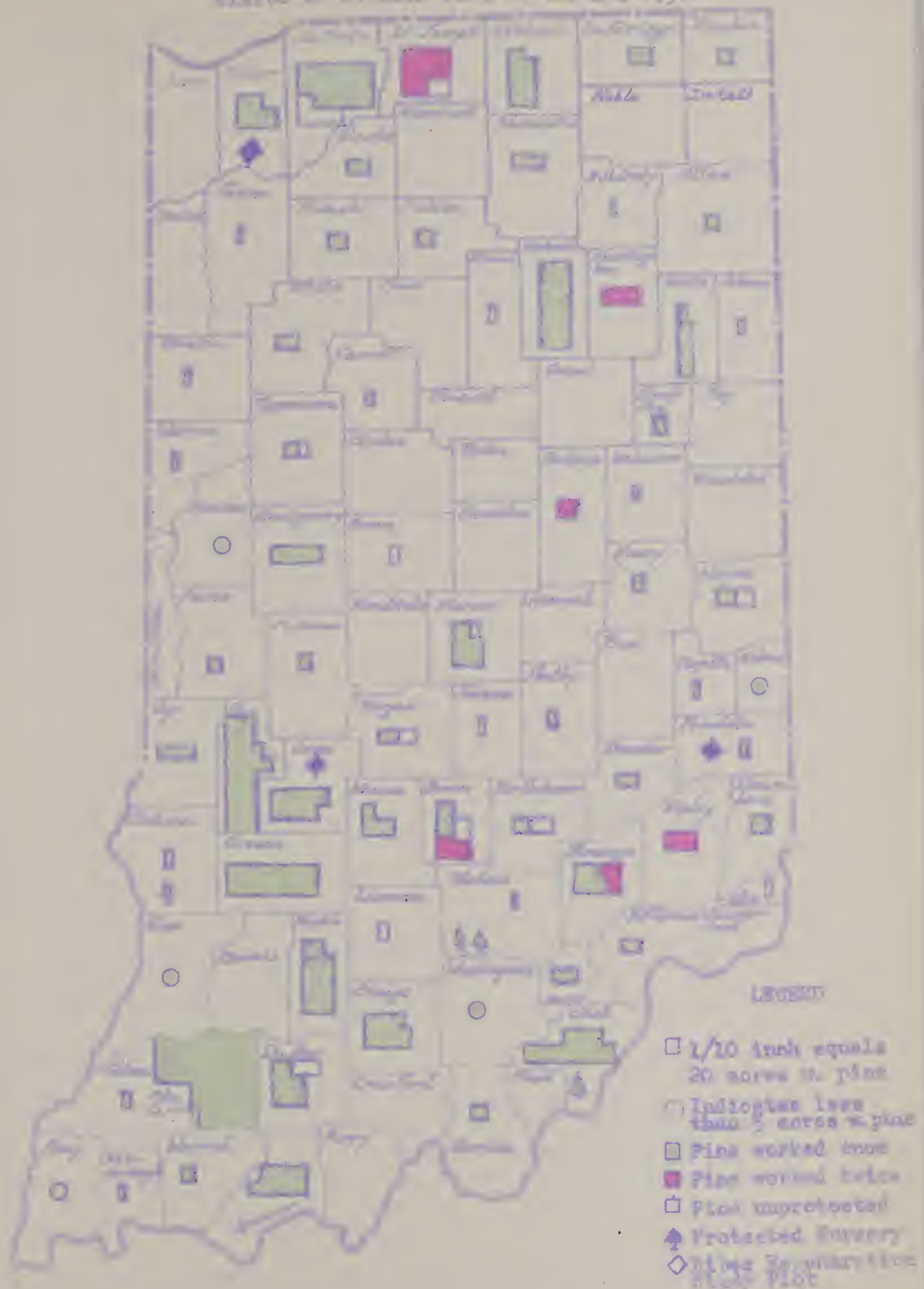
Calibrated Leak Current Efficiency

No systematic calibrated leak current efficiency studies have been carried out in Indiana. Calibrated leaks currently are planned as necessary to protect leaks already at work or active pipe rejoining contracts.

Recommendations for Control

Control control must be such a scale as to keep pace with the addition of new water pipelines. Continue control must be given previously processed with the intent of treating all like areas on a maintenance basis as rapidly as possible. Continue spraying to keep informed on the progress of annual or more

STATUS OF CONTROL WORK IN INDIANA 1935



Iowa

Blister Rust Conditions

During 1951 blister rust was found on pines in 71 counties of Iowa. The total number of counties in Iowa in which blister rust has now been found equals 71. In 3 of these counties blister rust on native pine has been reported. All infected counties are located in the north and eastern part of the state.

White Pine

The majority of white pine stands in Iowa are in the form of shelterbelts or windbreaks, located principally in the northeastern quarter of the state. Approximately 2,000 plantations, containing about 3,250 acres, are considered worth protecting. Native white pine is confined to a few counties in the extreme northeastern part of the state. Approximately 1,000 acres of native white pine are found in scattered stands. In addition to shelterbelt and planted pine in the state, approximately 400 acres of white pine planting stock have been approved for planting.

The present ownership of white pine is divided as follows:

Public Service	50 acres or 0.5%
State	400 acres or 4.0%
County and City	300 acres or 3.0%
Private	9,250 acres or 92.5%
Total	10,000 acres 100.0%

Status of Local Control

Acres W.P. and W.P.R.S. given protection	9,000
Acres W.P. and W.P.R.S. given initial marking	2,931
Acres W.P. and W.P.R.S. given second marking	319
Trees protected initially 3000 by second marking	0

Nursery sanitation

Two nurseries containing approximately 300,000 white pine seedlings and transplants were sanitized during 1950. To protect these nurseries a total of 880 acres of control area was scouted and 220 ribes bushes removed with an expenditure of five man-days of labor and scarifier.

Cultivated black currant Eradication

Initial cultivated black currant eradication has to date been carried on in 26 counties of Iowa. Approximately 40% of this work has

been completed. A total of 4,881 basins or 3,281 locations has been destroyed.

Brehmer cultivated black current eradications have been started in 4 counties where 122 basins on 87 locations have been destroyed. This work is approximately 10% complete. Including both initial and recheck work 6,774 cultivated black current basins at 1,804 locations have been destroyed to December 31, 1959.

Recommendations for Future Work

Continue local control work with emphasis on providing initial protection to remaining unprotected pine stands. Examine areas initially protected to determine necessity for rework with the aim of clearing as many such areas as possible on maintenance. Continue pine inventory in order to determine total control problem. Search for ways to keep a check on its rate of spread.



LEGEND

0.1 Sq. inch = 10 acres W.P.

■ Solid - Initially worked

□ Blank - Not Protected

Blank counties not surveyed

* Ribes or pine infection has been found

Status of Blister Rust Control Program on Delaware N. F., 1931

Wisconsin

Blister Rust Conditions

During 1930 blister rust on white pine was found for the first time in Waukesha and Iowa Counties and on ribes over the first area in Dodge County. To date rust on pine has been found in 34 counties and on ribes in 77 counties.

White Pine

A total of 588,561 acres of native and planted white pine and pulping sites is considered worth protecting. This area is composed of 526,987 acres native, 26,977 acres planted, and 34,597 acres reserved pineling sites.

The present ownership of white pine is divided as follows:

Federal	285,114 acres	49.9%
State	245,499 acres	42.9%
County and City	9,020 acres	1.7%
Private	32,878 acres	5.5%
Total	572,491 acres	100.0%

Status of Local Control

Acres W.P. and W.P.B.: needs protection	283,201
Acres W.P. and W.P.B.: given initial coverage	261,450
Acres W.P. and W.P.B.: given second working	18,711
Forests protected initially 21 &/or by second contact	2

Forest Sanitation

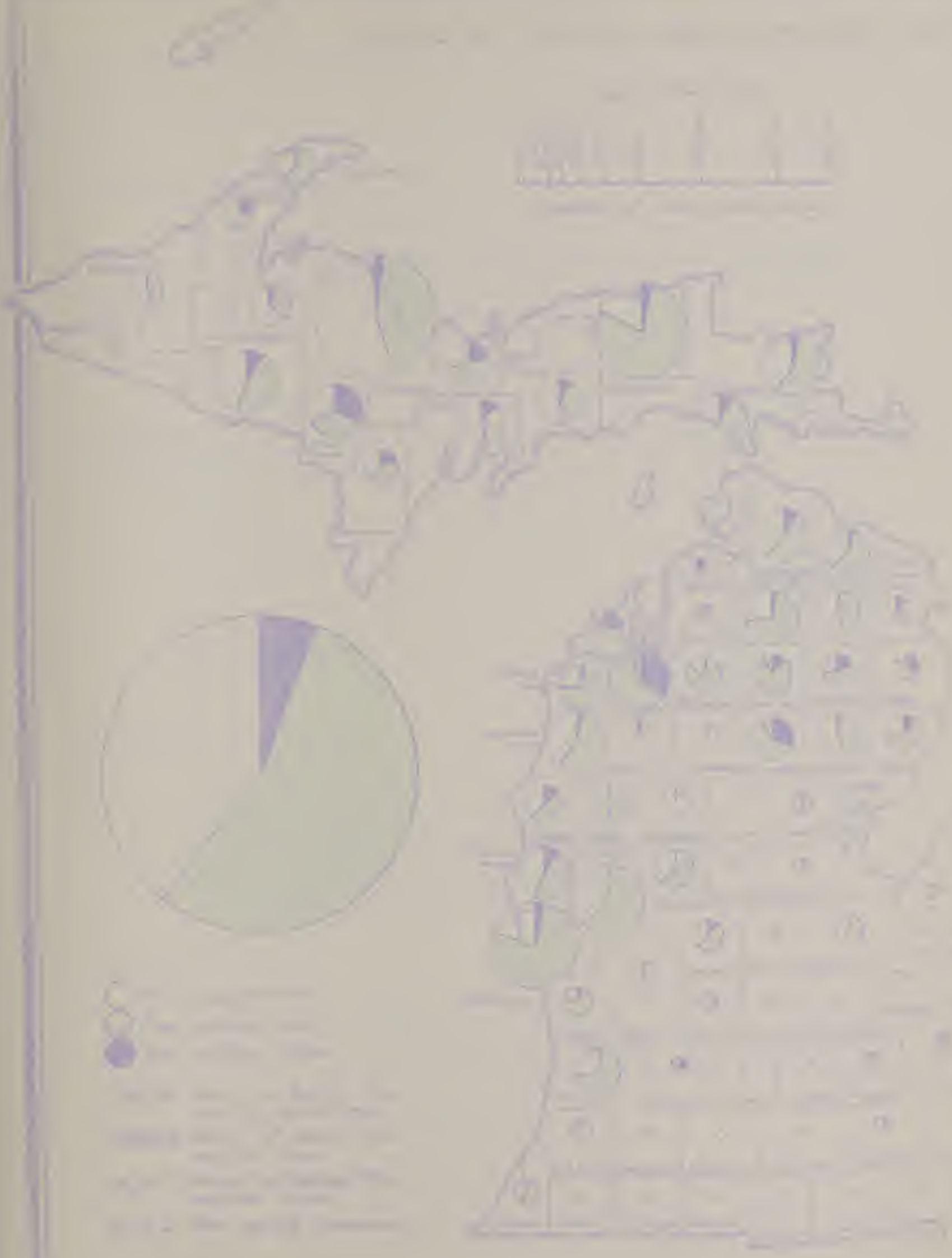
During 1930 2 surveyors, averaging 13,514,400 white pine stumps and cronaglooks, were examined. A total of 1,061 rust hosts was removed from 1,838 acres of control area with an expenditure of 10 man-days of labor and supervision.

Cultivated Black Current Eradication

Initial cultivated black currant eradication work in counties during 1930 accounted for the destruction of 6,720 ribes bushes found on 67½ locations. Of research work 250 bushes on 20 localities were destroyed. To date 127,432 cultivated black currant bushes have been removed from 13,888 localities. This work is entirely handicapped by the slow growing condition of the state.

Recommendations for future work

Continuous level control in order to provide stabilized pressures as near as possible for repeating experimental plan studies. Surges should be done where necessary to avoid pressures slightly above or below level. Continued maintenance check already eliminated program failures and recovery, in spite good performing exercises. Continued survey of pressured piping alines and new plantabilities. Instrument zero record surveries, where necessary, should be maintained.



Minnesota

Blister Rust Established

During 1951 blister rust was found on native pines and vines across for the first time in Fillmore and Winona Counties. The addition of these new counties brings the total to 37 in which blister rust on pines or both pines and ribes have been found.

White Pine

As the present time there are 800,630 acres of white pine and planting sites in Minnesota worth protecting. This consists of of 302,734 acres of native pine, 11,269 acres of planted pine, and 28,627 acres of white pine planting sites.

The present ownership of white pine is divided as follows:

U. S. Forest Service - - - - - - - -	90,973 acres or 12.4%
U. S. Indian Service - - - - - - - -	23,080 acres or 3.2%
State - - - - - - - - - - - - - - - -	75,135 acres or 10.2%
County and City - - - - - - - - - - -	387 acres or 0.1%
Private - - - - - - - - - - - - - - -	547,520 acres or 74.2%
Total - - - - - - - - - - - - - - - -	737,095 acres 100.0%

Status of Local Control

Acres T.P. and T.P.P.I. worth protecting - - - -	180,910
Acres T.P. and T.P.P.2 given initial working - -	142,495
Acres T.P. and T.P.P.3 given second working - -	28,709
Acres T.P. and T.P.P.4 given third working - -	281

Persons given initial working 50.9; second working 9.1; third working 0.08.

Nursery Sanitation

During 1951 seven nurseries, containing 5,497,725 white pine seedlings and transplants, were given sanitation workings. This work required covering 6,317 acres of stated area from which 29,201 ribes bushes were removed, with an expenditure of 700 man-days of labor and supervision.

Cultivated Black Current Eradication

Initial cultivated black current eradication was completed in two white pine growing areas of northern and eastern Minnesota during 1951. Only a small amount of initial work remains in the southeastern portion of the state. During 1952 a small amount of recheck cultivated black

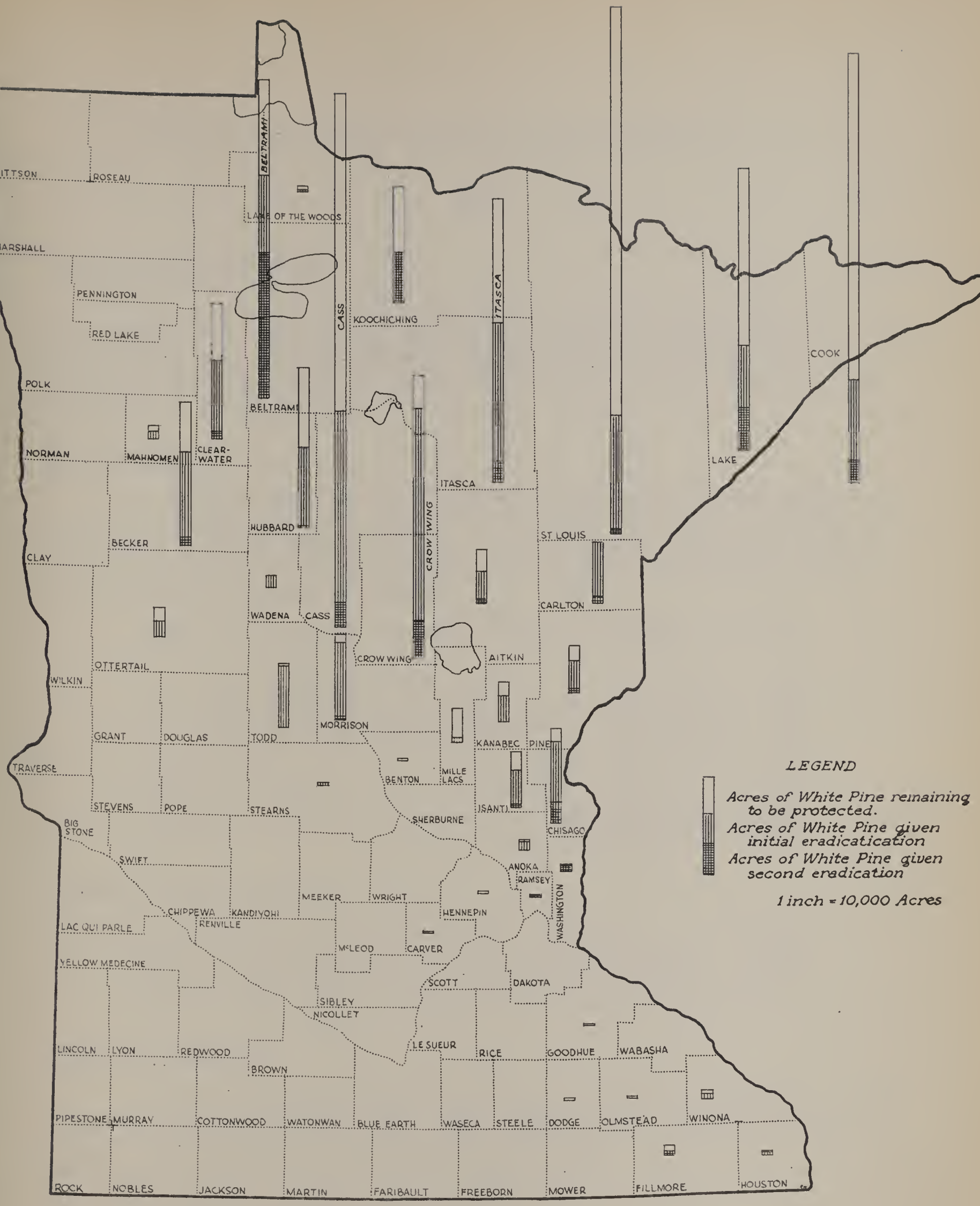
narrow eliminating work was done in 7 counties. A total of 169 hazes was destroyed on 38 locations at a cost of 309 man-days of labor and supervision. To date 82,360 wolves at 8,063 locations have been destroyed. Additional research work is necessary to completely eliminate multiplying black currants from the pine growing areas of the state.

Recommendations for Future Work

Continued research work with the aim of providing initial protection to all valuable unprotected white pine stands. This is particularly urgent in connection with white pine mature national forest boundaries where only one-quarter of the existing pine stands have received initial protection.

Continue annual or biennial check of control work around white pine producing nurseries.

It is recommended that subsequent workings be given pine areas to bring these areas to a satisfactory condition for placing them on maintenance.



STATUS OF BLISTER RUST CONTROL
MINNESOTA
Dec. 31, 1939

Ohio

Blister Rust Conditions

During 1938 white pine blister rust was found for the first time in 12 counties and on pine in 2 counties which previously had not been reported as infected. To date blister rust has been found on either, or both, ribes and pine in 38 counties. No search has been done to white pine, however.

White Pine

At present there are 14,010 acres of native and planted white pine worth protecting in Ohio. This pine area is divided into 5,590 acres native and 8,420 acres planted pine. A considerable amount of white pine is being used for planting in connection with soil conservation and forest or shelterbelts and windbreaks.

The present ownership of white pine is divided as follows:

U. S. Forest Service - - - - - - - - - - - - - - - - 70 acres or 0.5%
U. S. Soil Conservation Service - - - - - - - - - - 198 acres or 1.4%
Other Federal - - - - - - - - - - - - - - - - - - - 78 acres or 0.6%
State - 4,370 acres or 31.2%
County and City - - - - - - - - - - - - - - - - - - 110 acres or 0.8%
Private - 9,226 acres or 65.9%
Total - 14,010 acres - 100%

Status of Local Control

Acres of W.P. and W.P.P.S. worth protecting - - - - - 14,010
Acres of W.F. and W.P.F.S. given initial working - - - 10,784
Acres of W.T. and W.P.P.S. given second working - - - 10,784
Percent given initial working, 76.5; second working, 76.5

Primary Infection

During 1938 five infection zones were given inspection. As the basis of working 8,276,787 white pine seedlings and transplants were growing in these counties. A total of 2,152 acres of control area was covered from which 12 rings basins were removed.

Cultivated Black Current Eradication

No initial cultivated black current eradicative work has been done during 1938. However, a program of removal was started in the

destruction of 1,111 babies on 111 locations. This work required an expenditure of 300 man-days of labor and supervision. To date 10,000 cultivated black mussel snails have been removed from 7,400 locations. This program is practically completed in the counties producing sufficient cable plant to justify the work.

Recommendations for Future Work

Local control work should be continued in order to provide initial protection to all remaining unprotected plant stands. Pre-evaluation surveys should be continued to keep pace with the establishment of new plantings. Isolated cultivated black mussel eradication should be continued toward the complete elimination of this dangerous plant from the plus growing areas of Ohio.

STATUS OF LOCAL CONTROL PROGRAMS AS OF, DECEMBER 31, 1959



Minnesota

Blister Rust Conditions

During 1939 white pine blister rust was found for the first time in 8 additional counties. Rust was found on ribes in Jefferson and Lafayette Counties and on pine in Grant County. Rust has now been found on ribes in all 71 counties, and on pine in 30 counties. Severe damage has been done to white pine reproduction by blue rust in North Central Wisconsin. This damage occurred before local control measures were applied.

White Pine

There are in Wisconsin about 383,963 acres of white pine and planting sites now considered for protection. This area includes 331,213 acres native, 15,961 acres planted pine, and 12,713 acres of planting sites. Approximately 60% of the total pine acreage, or 220,000 acres, has been mapped and surveyed.

The present ownership of white pine is divided as follows:

U. S. Forest Service	21,100 acres	9.5%
U. S. Indian Service	17,900 acres	7.6%
Other Federal	2,200 acres	0.9%
State	11,900 acres	5.0%
County and City	56,800 acres	23.8%
Private	130,388 acres	54.2%
Total	383,963 acres	100.0%

Status of Local Control

Acres W.P. and W.P.P.S. worth protecting	383,963
Acres W.P. and W.P.P.S. given initial working	367,907
Acres W.P. and W.P.P.S. given second working	57,000
Percent given initial working of worth working	95.8

Nursery Sanitation

During 1939 nursery sanitation work was undertaken at two state and two federal nurseries. Approximately 18,000,000 young pines were growing in 203 acres in these four nurseries. To accomplish this work records covering 1,420 acres of cultural area from which 2,478 ribes bushes were removed. A total of 237 man-days of labor and supervision was spent.

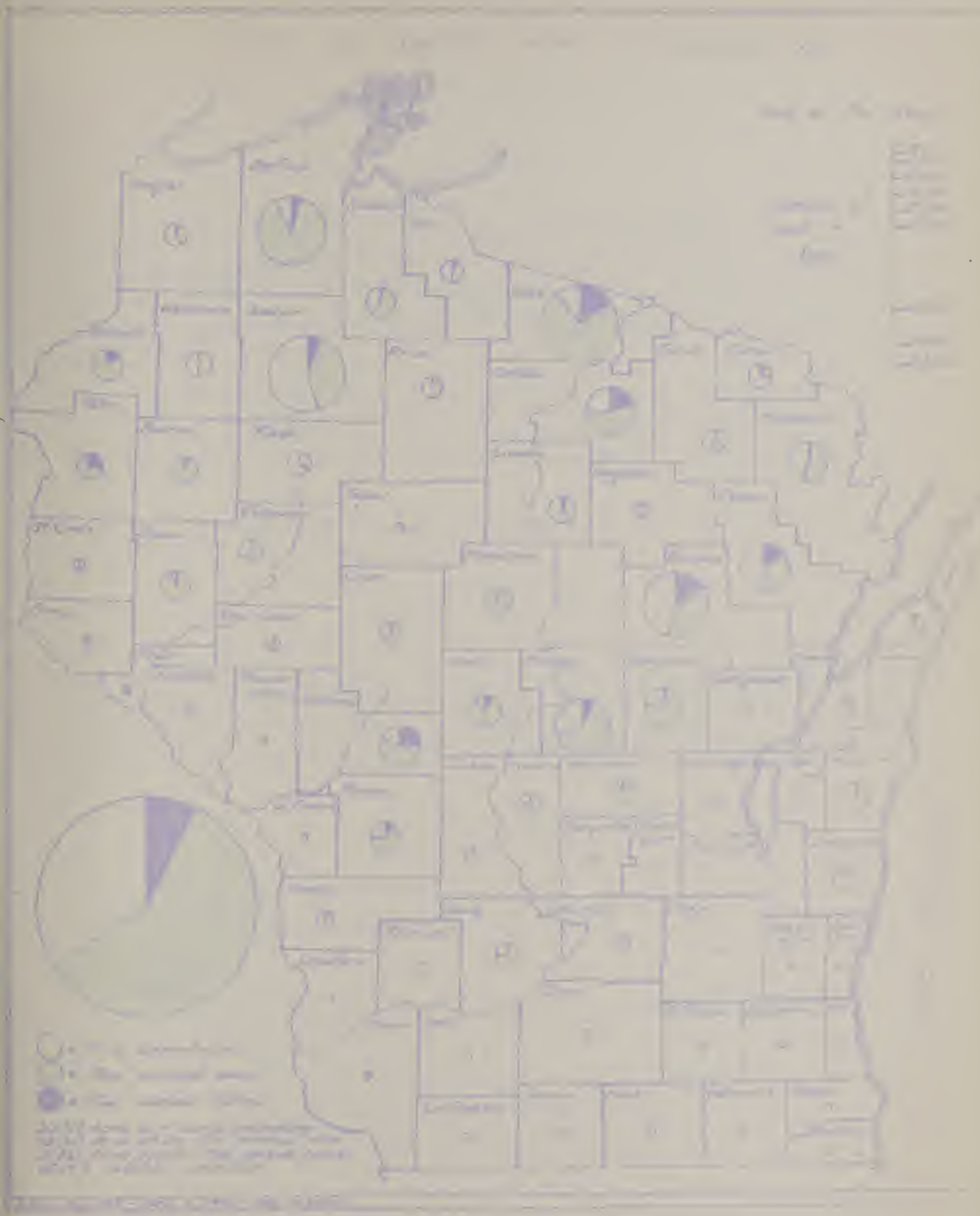
Cultivated Ribes Current Situations

Initial cultivated ribes current situation work was completed in the northern 61 pine producing counties. Research work was

been completed in 37 counties and partially completed in 7 counties. To date 16,427 poles at $.406 locations have been treated.

Recommendations for Future Work

It is recommended that brush control work be continued in order to provide initial protection to all remaining unprotected pine stands as quickly as possible. Second applications should be applied to areas already showing a need for retreat. Pre-eradication surveys should be completed for all remaining pine stands and designated planting sites. Recheck cultivated block current eligibility should be completed on all counties worked initially, and initial work performed in additional counties as the need arises. Records of stand eradication cause should be kept when accomplished for purposes of cites in categorical summary.



Detailed Activities Report, 1950

Organization

With one major change, the same general organization was in effect in 1950 as in 1949. Mr. E. C. Brandenburg, State Leader at State College, Mississippi, died of heart trouble on April 26, 1950. On duty in 1951, Mr. John K. Bratton, District Leader in Upper Michigan, was promoted to the position of State Leader. Mr. Elmer K. Allison, formerly in charge of control work in Indiana, was appointed District Leader at Upper Hamilton, replacing Mr. Bratton.

One change in the Washington office occurred in January. On December 31, Mr. Lewis E. Gleason from the Bureau of Agricultural Economics left Federal service to become Director of Office Services in the Division of Budget and Finance, Washington, D. C., at the close of the year.

The organizations to conduct the control program in the Rocky Mountain Region is given in the Organizational Charts.

Authorization for Work

As in the past several years, the work in 1950 was conducted under a Memorandum of Agreement dated as between the Bureau of Entomology and Plant Quarantine and the Bureau of Entomology and Plant Quarantine. For details of description of this and other cooperative projects, reference is made to the 1950 Annual Report.

Cooperative Activities

During 1950 the work was performed through contributions from four general programs and agencies listed as follows:

(1) State and private

(2) Regular funds, primarily Bureau, but including a small amount of forest service regular

(3) Emergency grant Appropriations, made up entirely of Bureau-sponsored projects, but including Cooperative projects in Minnesota, Utah, Wisconsin, Forest Service CBA in Montana and Wisconsin; Soil Service CBA in Michigan and TVA in Tenn-


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PLANT DISEASE CONTROL
WASHINGTON, D.C.
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L.E. NELSON, ... ASST. REGIONAL LEADER
E.E. WAHL, SPECIALIST, CONTROL STUDIES
F.F. STRAIT, FOREST SURVEY & P.C. INSPECTOR
P. LARSEN, ... PRINCIPAL CLERK, FISCAL DEPT.
EDNA E. DE, ASST. CLERK STENO. STENO DEPT.
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LEADER
DULUTH, MINN.
J.M. LUCKE
LEADER
W.R. XELL
LEADER
H.G. LLER
LEADER
R.W. WEBER
LEADER
S.W. LAUN
LEADER
= STATE EMPLOYEES
= PART TIME

(A) Civilian requirements survey, as administered through the Forest Service, Job Service, Park Service, Soil Conservation Service, and state.

A description of the type of assistance furnished by each of these agencies is given in the Unit Annual Report and will not be repeated here.

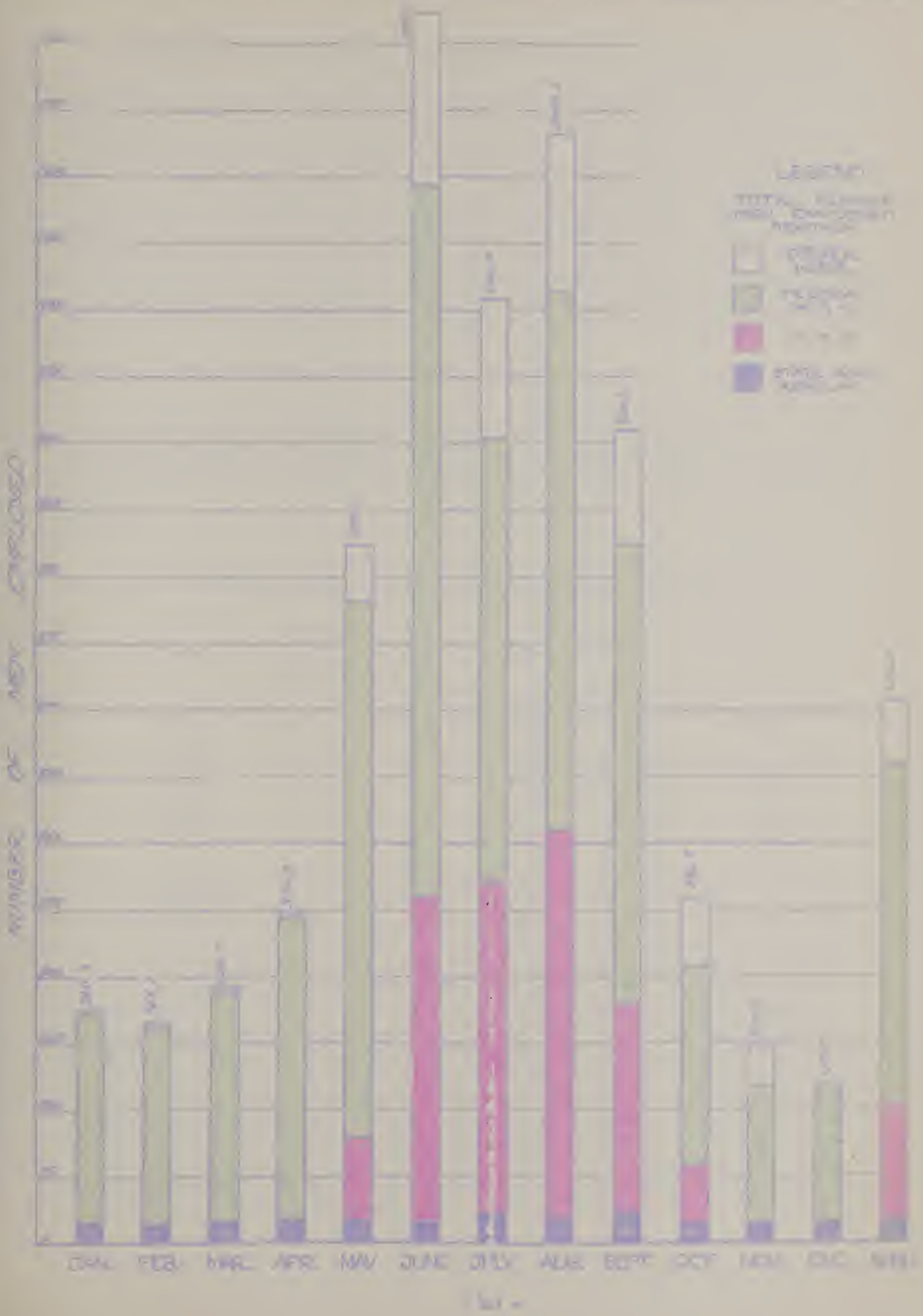
Number of Man Hours Worked

A careful and accurate record was kept of the number of man hours worked by project status, whether not classifiable or used. In order to show the approximate number of man-hours employed in areas not covered by the "allowable areas". In Table 2 there is given the amount of employment in the region, including distances, by months, progress and cutblocks. Table 3 shows the number of man-months worked by status, positions and sexes.

In all of these cases the assumption of employment under the federal NYA program are accurate and natural as derived by dividing the number of hours as most counted by the number of assigned hours per worker. In the case of all other projects, NYA was primarily a source of employment.

In Chart 1, the material in Table 2 is shown graphically. It will show the total number of man-hours worked by NYA projects, state, county and federal projects. In preparing this chart the total number of man-hours worked for the year 1939, it will be noted that for the months there were employed, in 1939, 7,000 men as compared with 6,000 in 1938. However, for the entire year there may be fluctuations, indicative, table were omitted, in 1939, 6,000 men worked as compared with 5,000 employment for the same period in 1938. This is an average monthly employment during the summer months of 1,000 in 1939 as compared with 1,000 in 1938. Thus, although the total employment of men in 1939 was considerably less than in 1938, the amount of man-months worked in 1939 was nearly as large as in 1938. The explanation for this fact is that during the fall months a larger number of men was employed in 1939 than 1938.

While also in order in Chart 1 that the use of NYA labor may contribute to the ability of NYA to detect fluctuations of man-hours of NYA projects which they desire, its use mainly confined to the months of May to September, inclusive. Men employed under the NYA and other NYA programs were almost entirely drawn to winter field projects such as forest control and cultivated field control activities. The number of men employed under the state and regular program remains fairly constant when month throughout the year. The employed were drawn fairly principally employed for permanent skilled labor.


JAN.
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DEC.

In Chart 2 the material in Table 2 is shown graphically by months and positions. It will be noted that the number of men making up the supervisory class is fairly constant each month throughout the year. The proportion of foremen to laborers was much higher during the inactive months than during the active field season. The reason for this is that during the active field season it is possible to work men in larger groups, requiring less proportional direct supervision than during the inactive months. In this latter period the field work consists mostly of pre-eradication survey, block current elimination and office work. The men in the field during the winter time work in much smaller crews. During these months also it is necessary to contact property owners and to perform work of greater than average difficulty in making pre-eradication surveys. For these reasons the proportion of foremen to laborers is necessarily greater.

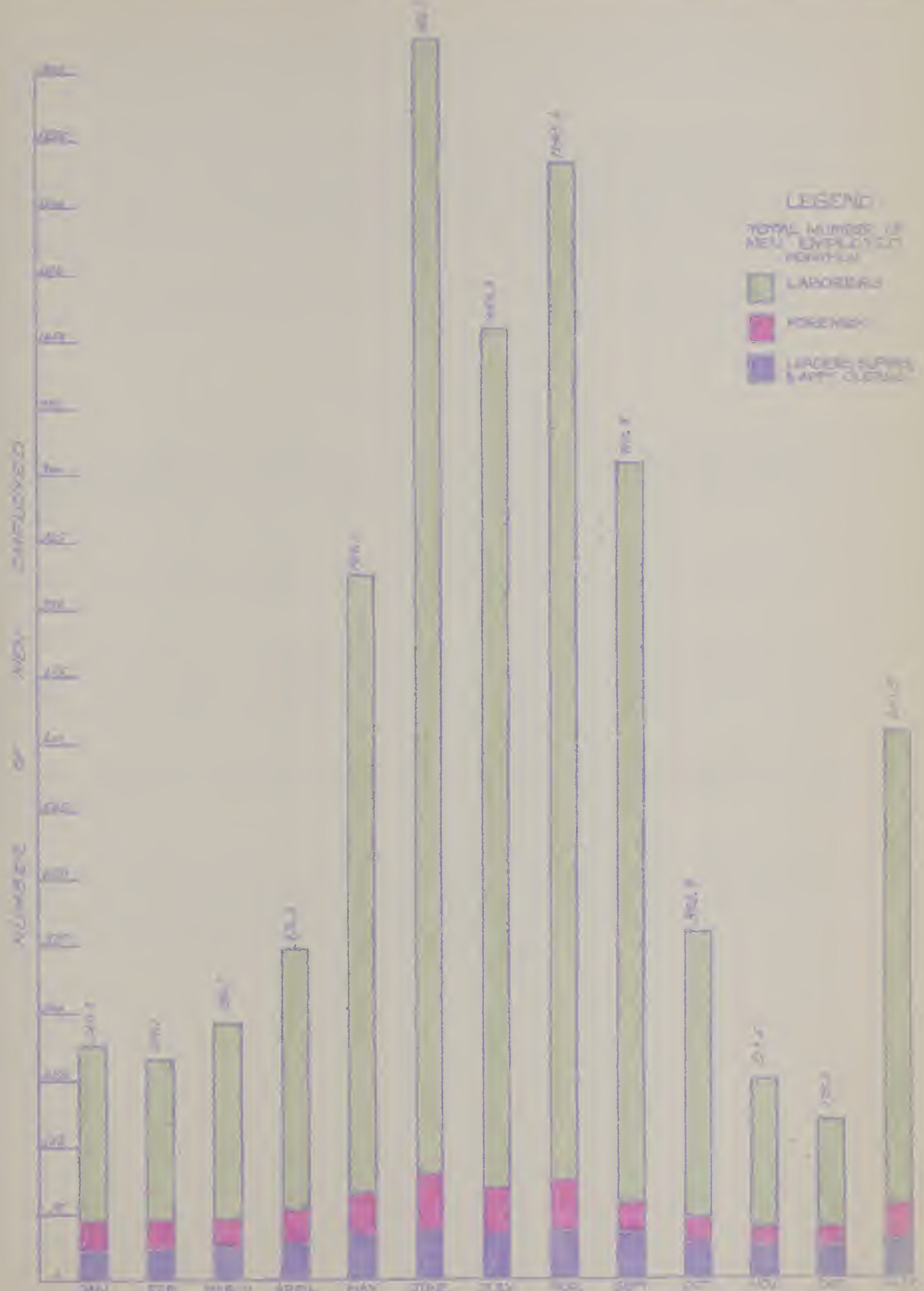
Number of Men Employed Yearly - 1934 to 1939

Since 1934 records of the number of men employed by months, programs, states and positions have been kept in a manner similar to that of 1939. Hence it is possible to make a reasonably accurate comparison of the number of man-months of employment during each of these years. This information is shown in the table following, derived from annual reports, 1934 to 1939.

Number Man-months Employed in the Blister Control Program
North Central Region, 1934 to 1939, inclusive

Year	State and Regular	FWA CWA FERA	CCC	WPA	Total
1934	161	6403	8832	0	15,396
1935	216	993	7813	5,609	14,629
1936	247	0	5726	13,058	17,031
1937	346	0	2145	5,296	7,787
1938	305	0	2136	5,347	7,788
1939	310	0	1569	5,457	7,326
Total	1583	5396	26,216	34,756	67,955
Average Year	264	899	4,369	5,793	11,325

Chart 3, based on the above table, shows graphically the relief agencies supplying men in each of the six years. The number of men employed under state and regular funds has remained fairly constant with 161 man-months in 1934 to a peak of 346 in 1937. The agency supplying a substantial number of man-months throughout the six-year period is the CCC. The number of man-months employed under the CCC program has declined steadily from a peak of 8,832 in 1934 to 1,569 in 1939. This reduction corresponds quite closely to the reduction in number of CCC Camps operating in this region during the period concerned. That the CCC has contributed substantially to the control program is evidenced by the fact that approximately 38.6% of the man-months during the six year period was contributed by the CCC program.


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During 1934 and 1935 men were hired under the PWA, CWA and FERA programs. These programs ceased at the end of 1935 and were replaced by the present WPA organization.

Since 1935 the WPA program has supplied a substantial percentage of workers. The largest year of WPA employment was in 1938, when 13,053 man-months were used. Nearly as many man-months of WPA employment were used in 1936 as in the three-year period from 1937 to 1939, inclusive. The WPA employment in these last three years has remained fairly constant, averaging approximately 5,370 man-months per year.

It is interesting to note that for the six-year period concerned the WPA has supplied 51.2% of the man-months.

Compensation Cases

The number of compensation cases under the WPA program, by states, is given in Table 5 and by months in Table 5A. No compensation cases were reported under the regular program and no record is available as to the compensation cases under other WPA programs or under the CCC.

As in 1938, Iowa again lead the states with the largest number of cases per 1,000 man-months. No compensation cases were reported from Illinois, Indiana or Ohio.

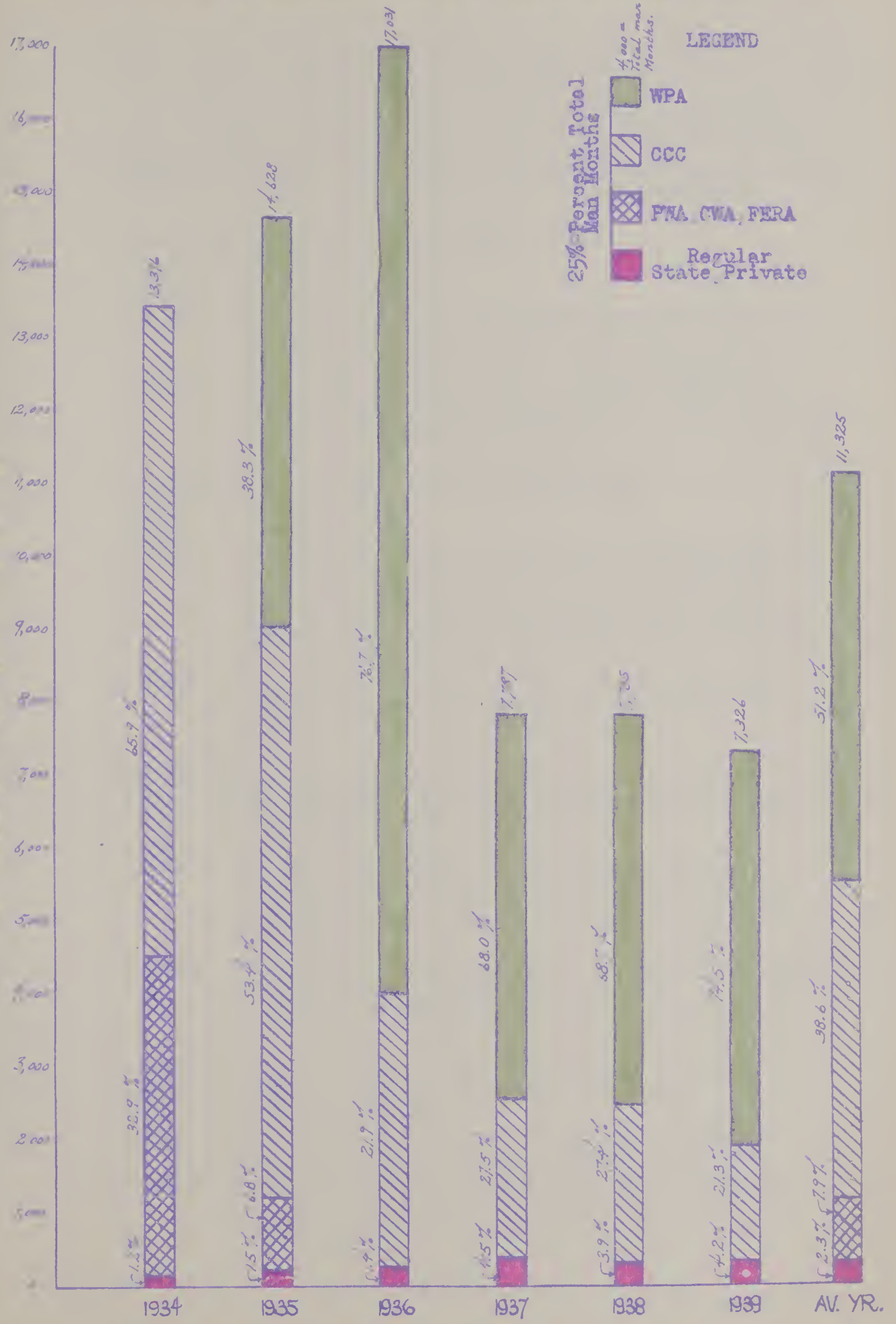
Over half of the compensation cases in the Region are chargeable to ivy and other plant poisoning. Injuries to the eyes accounted for the second largest number, although there were less than one-third the number of eye injuries as there were ivy and plant poisoning cases.

In 1939 the number of compensation cases per 1,000 man-months was 10.75. This was practically the same as in 1938 with 10.85 cases per 1,000 man-months.

From Table 5A it will be noted that the greatest number of cases per thousand man-months occurred in October. No cases were reported as happening in April or November. The number of cases per 1,000 man-months was otherwise quite uniform, with the months of January, February, July and December showing a lower ratio of injuries.

CHART 3

SHOWING NUMBER OF MAN MONTHS EMPLOYED ON THE BLISTER RUST CONTROL PROGRAM IN NORTH CENTRAL REGION BY YEARS, 1934 TO 1939, INCLUSIVE FROM ANNUAL REPORTS FOR YEARS CONCERNED



Automobile Accident Cases

ring 1939 there were 20 passenger carrying cars and 52 trucks in the region. There were 11 accidents, none serious, as listed uring 1938, with practically the same number of government cars ed, there were only 5 accident reports as contrasted with 11 in wever, in 1939, with the exception of the accident to Dodge License USDA 62-051, the damage to government cars was slight were no injuries to occupants in any of the accidents.

Dodge Pick-up, 1935, License USDA 52-051
Place - Muskegon, Michigan
Date - January 3, 1939
Cause - Excessive speed under hazardous road conditions, and truck skidded sideways for about 100' and hit an 18" diameter cedar power line pole.
Damage - Right side of car caved in. Frame badly bent and shattered right door and glass. Car repaired in March at a cost of $134.88.

Terraplane Coupe, 1934, License USDA 55-143
Place - Wooster, Ohio
Date - January 3, 1939
Cause - A privately-owned car parked on left-hand side of government-owned car in parking lot backed out and front bumper accidentally hooked left side of rear bumper of government car and broke off rear bumper.
Damage - Broken rear bumper on left side of car. Private party paid for repairs to government car. No damage to privately-owned car.

Ford Pick-up, 1934, License USDA 53-119
Place - Near Lakeview, Michigan, Township Line Road between T12N, R8W and T12N, R9W
Date - January 3, 1939
Cause - Driver of government truck stopped because of ice and sleet on windshield to remove same and privately-owned vehicle struck government car in rear.
Damage - No damage to government car. Damage to privately-owned vehicle consisted of bent grill on radiator. Repaired at no cost to government.

Chevrolet Panel Delivery, 1937, USDA 64-368
Place - 8 miles northeast of Cambridge, Minnesota
Date - January 10, 1939
Cause - Car slid into ditch on left side of icy road and contacted frozen snow on ditch bank.
Damage - Left front fender slightly bent and light dent in body. Repaired by employees of blister rust office in Minnesota.

Dodge Pick-up, 1935, License USDA 38-231

Place - Route M-13, about 1 mile north of Route M-78, northeast of the city of Durand, Michigan.

Date - January 20, 1939

Cause - Extremely dense fog and slippery pavement caused government car to hit rear of car of private party when driver of privately-owned car attempted to stop suddenly.

Damage - Left front fender bent at the front end of government car. Two grills in radiator grill bent in half on privately-owned car. Very little damage in either case.

Chevrolet, Sedan, 1936, License USDA 40-882

Place - Milwaukee, Wisconsin

Date - April 19, 1939

Cause - Bus hit private car which emerged from side of bus going north as driver of government car going west started to cross street after making stop; resulted in government car hitting private car.

Damage - Front left fender and bumper bent and radiator connection loose on government car. Right rear and front door and running board dented or scratched of privately-owned vehicle. Damage to private car was evidently adjusted by insurance company. Government car repaired at small cost by government. Private car repaired at cost of $34.88 paid by Insurance Co.

Ford, Tudor Coach, 1937, License USDA 56-149

Place - Madison, Wisconsin

Date - May 8, 1939

Cause - Bus pulled out into lane of traffic hitting government car. Cars in traffic lane on left traveling in same direction prevented driver of government car using lane to avoid collision.

Damage - Damaged right rear fender, bent hub cap and body above fender slightly bent on government car. No damage to bus, but they have presented claim for damage of $7.56 and refuse to pay our claim. However, claim is still pending.

Plymouth Sedan, 1935, License USDA 52-461

Place - Connorsville, Wisconsin

Date - June 26, 1939

Cause - Cars parked on highway obstructed view of driver of private truck coming east and driver of government car going north. Driver of private truck unable to stop and hit government car.

Damage - No damage to privately-owned truck but grill jammed and broken, bumper bent, radiator shell jammed and bent on government car. Repair to government car assumed by government.

9. Dodge Pick-up, 1935 License USDA 62-048
   Place - Plymouth Township, Richland County, Ohio
   Date - October 13, 1939
   Cause - Government car stopped in road overshot road turn. Private car came up behind at great speed and hit left rear corner of government truck.
   Damage - Bent license plate and tail light holder of government car. Both right fenders and body dented of privately-owned car. Small damage to government truck taken care of by government. Insurance company to pay damage to privately-owned car.

10. Dodge Pick-up, 1935, USDA 62-040
   Place - Sagola, Michigan
   Date - November 27, 1939
   Cause - Unseen deer leaped from roadside onto hood and windshield of truck.
   Damage - Broken windshield and frame, top dented, radiator damaged by fan, rear window of cab cracked. Car repaired by government.

11. Dodge Pick-up, 1935, USDA 49-055
   Place - State Highway 43 between Hart and Rushford, Minnesota.
   Date - December 20, 1939
   Cause - Road was glare-ice and truck swerved on ice and slid into ditch.
   Damage - Headlight bracket and lens broken, also some dents in top of truck. Damage slight and repairs taken care of by Minnesota blister rust office.

Federal WPA Program

General

As in previous years, the Regional Leader at Milwaukee was continued as project manager and the funds for all of the states were handled through the Milwaukee Office and paid from the Treasury Accounts Office at Madison, Wisconsin. In cooperation with each state leader, budgets were prepared beforehand by months for each state, showing the distribution of funds by sub-allotments, such as appointees' salaries, non-relief salaries, relief salaries, travel, automobile expenditures, supplies and reserve. These budgets were prepared in accordance with existing requirements as to the 95-5 ratio and the non-salary limitation. The expenditure of funds was in accord with the budgets as ascertained by frequent comparisons, thus assuring compliance with the requirements.

These project WPA funds were used for the employment of certain district leaders (where regular funds did not permit their employment) supervisors, foremen and laborers. The wage rates used were those authorized by each state WPA administrator.

In addition to WPA project funds, a limited amount of WPA administrative funds were used for the employment of clerks and for travel and other expenses in the Milwaukee Office.

The same satisfactory spirit of cooperation previously existing between our organization and the several state WPA organizations was maintained in 1939. The Treasury Accounts Office at Madison continued to cooperate very closely in paying vouchers promptly and in giving us valuable assistance in many fiscal problems. Frequent checking of our own books with those of the Treasury Accounts Office made sure that the record of expenditures maintained in our office compared to the penny with the Treasury Accounts books. In general, use of these federal WPA funds in blister rust control work has proven very successful.

Number of Men Employed on the Federal WPA Program

In Table 4 there is shown, by months, the number of man-months employed under the federal WPA program by states and classifications of men. The man-months shown in this table are accurate as derived by dividing the number of hours worked and paid by the number of assigned hours per month.

The material in Table 4 is shown graphically in Chart 4.

The proportion of skilled and intermediate employment to unskilled is greater during the inactive months, as previously explained. It will be noted that the proportion of employment of skilled workers is much higher during the period January to June, inclusive, than for the latter half of the calendar year. There are two major reasons for this circumstance. In the first place, the total employment of WPA workers was decidedly higher during the winter months of January to March than in November and December. As already explained, the need for skilled workers in proportion to unskilled is greatest during the inactive months; and since a greater number of individuals were employed during January to March than during November and December, an equally greater number of skilled workers were used.

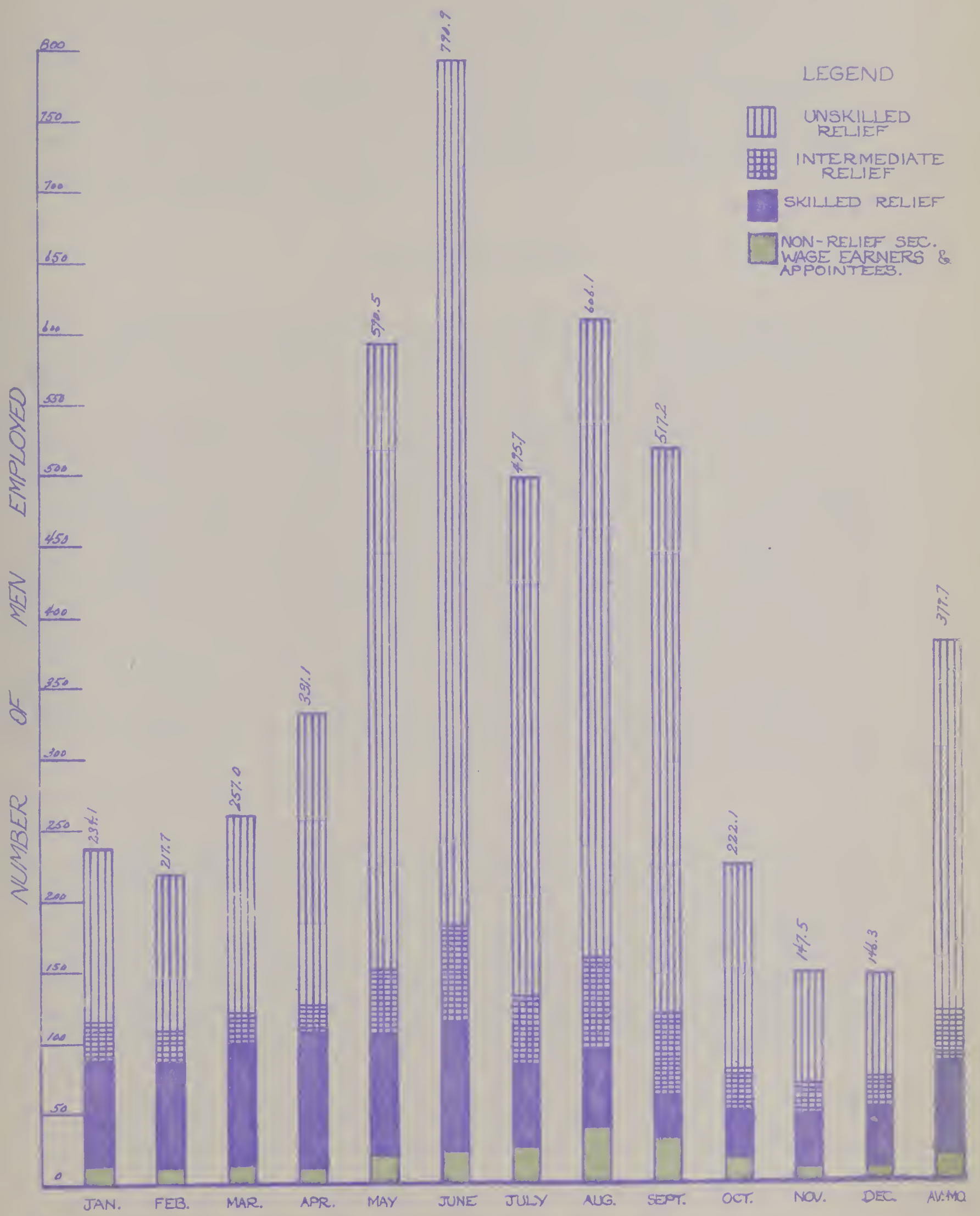
Secondly, beginning the first of July, funds were reduced over those available for the fiscal year ending June 30, 1939. Of necessity this reduction in employment also reduced the number of skilled workers employed beginning July 1.

Wage Rates

During the period January 1 to June 30, 1939 the same wage rates and hours were obtained as during the calendar year 1938. In all cases the wages and authorized hours were on a county basis, the same as for

CHART 4

SHOWING NUMBER OF MEN EMPLOYED ON FEDERAL W.P.A. BY MONTHS AND CLASSIFICATIONS. NORTH CENTRAL REGION, 1939. BASED ON TABLE 4.



the state WPA projects. There was a considerable divergence of authorized hours and wages between wage areas in each state. Effective July 1, 1939, the hours of work of security wage earners throughout all of the states were standardized at 130 per month. The wage rates varied approximately as heretofore so that the total monthly wage remained approximately the same as in the first part of 1939. In some localities this standardization of monthly hours meant an increase in authorized hours from 80 hours to 130 hours. In spite of the serious objection on the part of WPA workers in some localities to this increase in number of hours of work, WPA employees on our projects did not complain and we had no refusals to work or strikes.

Spread of the Rust

Weather conditions during 1939 continued favorable to the further spread and intensification of the rust. Infection was found on both pines and ribes in counties not previously known to contain infected host plants.

The effect on ribes bushes of a close and abundant source of aecia, coupled with favorable weather conditions, was observed at the Garfield Study Plot in Portage County, Wisconsin, where there is an abundance of heavily infected white pines associated with a large number of Ribes cynosbati bushes. During the latter half of June these bushes were observed to be very heavily hit with the rust. Many uredinial sori were present on each leaf. Infection was so heavy that by June 23 practically 75% of the leaves had fallen off, due almost entirely to the action of the rust. The weather was wet and there was no defoliation due to drying out of the leaves. By early July practically all of the ribes bushes near the plot had been defoliated before the production of telia. Later on in the year new leaves were formed and additional uredinial infection took place. However, the amount of telia produced before natural defoliation also took these new leaves, was almost negligible.

The general status of infection to the end of 1939 in each of the states was as follows:

Illinois. During 1939 no rust was found on either ribes or white pine. Only a small amount of ribes bushes were examined but a total of 21,415 white pine trees at 29 locations were inspected. These trees were in the general vicinities of areas where rust on cultivated black currants had been found in the past. Previous to 1939 a total of 54 locations of infected ribes had been found in 10 counties in northern Illinois. No pine infection has ever been reported from the state. It is expected that if time permitted a thorough search, pine infection could be located and it is almost certain that a considerable amount of pine infection must result from the previously found locations of infected ribes.

Indiana. Practically no scouting for the rust was done in Indiana in 1939. A limited amount of scouting in previous years resulted in finding the rust on ribes at three locations in three counties. The only pine

infection reported was that found in Gibson County in 1910 on imported white pine. The white pines were later destroyed.

Iowa. A decided addition to our knowledge of the spread of the rust was made in 1939. For the first time rust on R. nigrum bushes was found in 10 counties. No rust on pines was reported in 1939 but previously pine infection had been found in three counties. To the present time rust has been found on ribes in 21 counties, chiefly in the northeastern quarter of the state.

Michigan. Pine infection in Mackinac and Luce Counties, and rust on ribes in Oscoda County were found for the first time in 1939. These findings bring the total number of counties containing known pine infection to 34 and those in which infected ribes have been found to 77. This leaves only Ingham, Calhoun, Jackson, Hillsdale and Monroe Counties in which neither pine nor ribes infection has been found. An increase in pine infection was noted in some of the unprotected areas in counties previously known to be infected. Pine infection is heaviest in Dickinson and Marquette Counties in Upper Michigan. In Lower Michigan scattered pine infection centers have been found in the counties bordering both Lake Michigan and, to a lesser extent, Lake Huron.

Minnesota. In 1939 infection was found for the first time both on pines and ribes in Fillmore and Winona Counties in the southeastern portion of the state. Unusually heavy ribes infection was reported along the north shore of Lake Superior. A large center of pine infection was found in Winona County extending over about 30 acres of a larger pine stand. A study was made of this area by Dr. Honey of the Milwaukee office. His findings show that 21% of the trees were already infested and 4.2% had been killed by blister rust. The ribes concerned on this particular area were very largely Ribes missouriense. However, a limited number of R. cynosbati bushes were present and it is believed that these bushes were primarily responsible for the initial infection beginning in 1926. To the end of 1939 infection had been found in 33 counties on ribes and in 28 counties on white pines.

Ohio. Ribes infection was found for the first time in 12 counties and on pines in 2 counties. Infection is known to be generally present in the northern half of Ohio. An important pine infection center was found near Carrollton in Carroll County in a white pine plantation averaging perhaps 10 feet in height. This infection is quite isolated from previously known pine infection centers. To the end of 1939 rust on ribes had been found in 39 counties and on pines in 10 counties of the state.

Wisconsin. During 1939 rust was found for the first time on ribes in Jefferson and Lafayette Counties, and on white pine in Grant County. The disease now has been discovered on ribes in all 71 counties of the state and on white pine in 50 counties. With the exception of Iron County, rust has now been found in varying amounts in the northern three-fourths of the state. During 1939 it was the exception rather than the rule for bushes destroyed in ribes eradication to be not infected.

White Pine

General

In the 1936 Annual Report there is given a statement of the estimated value of white pine in this region, amounting to $65,000,000. No attempt is made to alter this valuation for the 1939 report.

However, the acreage of white pine in this region is decidedly on the increase. This is due not only to the very active program of planting white pine by various agencies in the region but also to better methods of fire protection and improved forestry practices. Weather conditions during the past three years have been favorable to germination and growth of white pine coming in naturally. From Table 14 it will be noted that there are approximately 1,250,000 acres listed for protection. This is an increase of 41,721 acres over those listed for protection in the 1936 report. The increase is chiefly accounted for by approximately 3500 acres of additional approved planting sites, 24,000 acres planted white pine, and 14,000 acres of native white pine. The acreage of white pine listed for protection is thus not a static figure. In 1938 this acreage was approximately 56,000 acres larger than that reported in 1937

Ownership

The ownership status of white pine in the region is in a constant state of flux. Based on Table 14, the percentages of acreage of white pine and white pine planting sites listed for protection and the different classes of ownership are as follows:

Federal Forest Service	18.0%
Federal Indian Service	4.2%
Other Federal Ownership	0.3%
State	21.4%
County and Municipal	3.9%
Private	51.5%
Total	100.0%

Thus practically half of the white pine is in some form of public ownership and half in private ownership.

Pre-eradication Survey

Pre-eradication Survey Work - 1939

In Tables 6 and 7 are given statements of pre-eradication survey work performed in 1939 by states, according to agency performing the work and ownership class, respectively. Of the total of 75,629 acres of white pine and white pine planting sites mapped, 61,731 were considered worth protection. To protect this acreage it would be necessary to remove ribes from 229,894 acres. Maps were made of this total acreage and estimates

have been prepared as to the number of man-days required. This pre-eradication survey work required 3,566 man-days costing $15,914.31. Thus, on the average approximately 63 acres were mapped per man-day and the cost was 7¢ per acre. These acres worked per man-day and cost per acre are the same as those incurred in 1938.

By far the largest amount of pre-eradication survey work in 1939 was performed under WPA program. Approximately 60% of the survey work was performed around privately owned white pine.

Reported in Tables 6 and 7 is only initial pre-eradication survey work. A limited amount of resurvey was performed, principally in Michigan, shown in Table 7A in connection with post-checking and examination of areas previously worked. In this table it will be noted that of the 28,795 acres of pine previously surveyed, 15,960 acres, or 60%, are no longer considered worth protection, due to a variety of reasons.

Approximately 10,000 acres of white pine planting sites were surveyed. In making pre-eradication surveys around planting sites, more intensive work is usually done. Often, on certain planting sites which are ribes free, or practically so, no further work is needed. Theoretically such pre-eradication survey work could be charged to local control. However, for simplicity in recording costs, such work is charged to pre-eradication survey.

Cumulative Pre-eradication Survey Work

In Table 8 there is shown a statement of total acreages given pre-eradication survey to date. It will be noted that of the 1,255,633 acres of white pine and white pine planting sites listed for protection 1,113,372 acres, or practically 89%, have been covered by pre-eradication survey. While it is true that the major portion of the pre-eradication survey work is completed, it is also true that so long as white pine is being planted and is coming in naturally under seed trees, there will be a certain amount of pre-eradication survey work to be done each year.

It should be pointed out that the total of 1,255,633 acres listed for protection in Table 8 is slightly less than the 1,258,929 acres of white pine and white pine planting sites listed for protection in Table 1A. This difference of 3,295 acres is due to the fact that there is an additional acreage of planted white pine not surveyed, and hence not shown in Table 8.

From Table 8 it may be noted that the ratio of acres of native white pine to acres necessary to work is approximately 1 to 5. In the case of planted pine this ratio is approximately 1 to 13. This extremely high ratio for planted pine is chiefly influenced by the situation in Iowa where the control problem is almost entirely concerned with the protection of shelterbelts. These shelterbelts average not more than a quarter or third of an acre each and require the working of approximately 50 to 60 acres per shelterbelt. On an acreage basis, this means that to

protect one acre of pine in shelterbelts it is necessary to remove ribes from approximately 174 acres. This is more striking on paper than in actuality because usually only a few acres per shelterbelt have to be worked for ribes and the remainder of the control zone is in cultivated fields and is ribes free. If the acreage figures in Table 8 are considered for planted pine, exclusive of Iowa, the ratio of protected area to worked area is approximately the same as for other stands of white pine.

Local Control in 1939

General

Local control work performed in 1939 is shown in Tables 9 to 13, classified by states and agencies and listed separately for initial, mop-up, second and third eradications. Including all workings, 366,019 acres were cleared of ribes. Of this total, 292,613 acres were initially worked, 72,726 acres were worked for the second time, and 680 acres were given a third working.

In Table 13 it will be noted that in all eradications 86,279 acres were protected by removing 17,823,664 ribes from 366,019 acres. This required 83,292 man-days of labor and supervision and cost $267,537.91. On a per-acre basis 48.7 bushes were pulled, 0.24 man-days were expended and the cost amounted to 73¢ per acre worked. These per-acre figures are very similar to those shown for 1937. Compared with 1938, however, the bushes pulled and the costs per acre were higher in 1939.

The volume of work done in 1939 was less than in 1938. Acreage worked in 1939 was 366,019 acres compared with 475,437 acres in 1938. Approximately a million less ribes were pulled in 1939 than in 1938. There were employed in 1939, 83,292 man-days as compared with 84,556 man-days in 1938.

The division of acreage worked in 1939 into crew and scout is in the same proportion as in 1937 and 1938. Approximately 70% was worked by scout and 30% by crew. Ribes pulled averaged 1.2 per acre for scout work and 68.1 per acre on crew work. In scout work an average of 33.6 acres was worked per man-day and in crew work this average was 1.4 acres per man-day.

The principal agencies performing local control in 1939 consisted of the WPA and the CCC. The CCC was under the jurisdiction of the Forest Service, Indian Service, Soil Conservation Service and state. Practically 73% of the acreage was worked by WPA, 21% by CCC and 6% by men employed under regular, state and private funds.

As noted in Table 12, a considerable amount of mop-up work was performed both after initial and second eradications. Since mop-up, as the name implies, is simply additional working of areas unsatisfactorily worked the first time, the acres worked and acres protected in mop-up

are not shown because they have previously been recorded under either initial or second eradication.

In Tables 14 to 18, inclusive, there are shown by states the acreages protected in 1939, classified into ownership classes and agencies performing work. It will be noted that approximately half of the pine protected was privately owned and half owned by various public agencies. Most of the WPA work was spent on private land. On the other hand, a great majority of the work done by the CCC was performed on lands of public ownership, chiefly state, Forest Service, and Indian Service. Approximately three-fourths of the acreage protected by regular, state and private agencies was owned by the Forest Service.

There follows a statement covering local control in 1939 in each of the states:

Illinois The work in Illinois was confined to initial eradication and mop-up after second eradication. Labor was obtained from the state, WPA, and private sources. The use of private labor was confined to mop-up work on Mr. Lowden's estate. Mr. Lowden has given his extensive plantings of white pine a yearly going over for rives.

Indiana Blister rust control work in Indiana was confined chiefly to the months of May and June 1939. A small allotment of $2000 made this work possible. The work done was performed on regular funds, CCC funds administered by the Soil Conservation Service, and WPA. Seventy areas, containing 838 acres of white pine and planting sites were protected by removing ribes from 12,849 acres initially. Approximately 81 acres of native white pine were protected in second eradication by removing ribes from 435 acres. The ownership of acres protected was approximately three-fourths private and one-fourth state.

In Indiana there is an active planting program of white pine by farmers and others for reforestation purposes. White pine grows very well in Indiana. Fortunately, the lower third of the state is almost entirely ribes free. Usually a sufficiently intensive examination of white pine areas in southern Indiana is all that is required. This condition makes average cost figures and ribes per acre very low.

Iowa In Iowa the control problem chiefly concerns the protection of white pine shelterbelts. During 1939, 260 areas, almost entirely shelterbelts, containing 389 acres, were protected by the removal of 261,163 ribes from 17,667 acres. All of this work was done under the WPA program, although in certain instances owners furnished labor to assist the WPA workers in protecting the shelterbelts. Of the total of 17,667 acres worked, 16,684, or 95%, were cultivated fields where it was only necessary to scout fence rows.

With the exception of 570 acres worked to protect 160 acres of native white pine and 100 acres of white pine planting sites owned by the state, all of the work done was on private property.

Michigan. Work in Michigan was performed chiefly by the ECW under the WPA and CCC programs. In addition to our Stand-replacement work, work was done on WPA funds sponsored by the Forest Service and the National Park Service. The CCC was administered by the Forest Service and strictly control work in 1939 was carried on in the same manner as in 1937 and 1938.

A total of 96,415 acres was covered on initial and second examination as compared with 180,369 acres in 1938. Approximately 87% of the acreage treated was worked initially and 13% by second examination.

Of the 96,415 acres worked in 1939, presumably 71% was worked by crew and 29% by scout.

On initial eradication approximately 40% of the pine protected was privately owned and 60% was owned by public agencies, principally the Forest Service and state. Of the 84,116 acres protected initially, 33% was protected by WPA, 52% by CCC and 15% by regular. All of the acreage protected by regular funds was owned by the Forest Service, consisting chiefly of planted white pine on the Manistee National Forest.

On this forest there are extensive stands of red or Norway pine which were produced exclusively white pine. Replacing of white pine under red has been vigorously pushed on this forest. For the most part the areas are fires and their protection consists in a thorough examination by an experienced man. During 1939 the District Agent of Lower Michigan did a great deal of this inspection work himself.

Approximately 62% of the acreage worked by WPA was under private ownership. All of the acreage initially protected by regular funds was owned by the Forest Service and 83% of the acreage worked under the CCC program was in public ownership, chiefly state.

Minnesota. Fire-eradication check area method continued to be used in Minnesota under the WPA program as in 1937 and 1938. A complete description of this method, which has proved well adapted to Minnesota conditions, is given in the 1937 Annual Report and will not be repeated here.

Local control work in Minnesota during 1939 was performed chiefly by the WPA under Bureau and state sponsorship and by the CCC as administered by the Forest Service, Indian Service and state.

During 1939, on initial eradication, 11,318 acres of white pine and white pine plantings sites were protected by removing 4,784,300 ribes from 28,738 acres at a cost of 11,514 man-days.

Under second eradication 2,197 acres of white pine and white pine planting sites were given protection by the removal of 1,406,778 ribes from 19,662 acres at a cost of 4,025 man-days.

A small amount of third eradication was also performed. A total of 220 acres was protected for the third time by the removal of 52,901 ribes from 880 acres, at a cost of 18 man-days.

Of the 49,070 acres worked in 1939, 38,739 acres or 79% were worked initially; 10,061 acres or 20% were worked for the second time; 270 acres or 1% were given a third working.

Ribes are more abundant and more generally distributed in Minnesota than in the other states in this region. This is evidenced by the fact that of the 49,070 acres worked approximately 33% had to be covered by crew and 67% by the scout method. For the region as a whole 30% of the area was worked by crew and 70% by scout.

For the first time in this region a successful ribes eradication camp was operated on WPA funds in Minnesota. This camp was located in northern Cook County, in the northeastern portion of the state, immediately south of the Canadian border. The area is inaccessible by road and can be reached only by boat across inland lakes. In this area there is a 10,000 acre block of white pine. A small amount of work was done here in 1934 by means of a small camp established on PWA funds.

In 1939 a 50-man camp was established and was in operation from about June 15 to September 15. The normal camp personnel was 50 men, including the camp supervisor, clerk, cook, two cookees, crew leaders and eradication laborers. Thus, approximately 10% of the camp personnel was necessary for camp operation and maintenance.

The camp was operated under WPA regulations in which a deduction for food was made at the rate of 25¢ per meal, 70¢ per day, or $20.00 per month.

Laborers for the camp were recruited from single or unemployed men certified as in need of relief. During the first few weeks of operation a considerable amount of turn-over was experienced. During the major portion of the season, however, there was an unexpectedly small amount of turn-over considering the transient nature of the laborers. The workers for the most part were men of middle age who had been used to woods life. They were adapted to camp life and as long as food was abundant and well prepared they were satisfied. We were fortunate in obtaining the services of an excellent cook, not only because of his unusual ability in the preparation of food but also because of his fine personality. This combination is sufficiently rare in camp cooks to be worthy of mention.

Equipment for the camp was obtained from all sources possible. Tentage, two canvas, one outboard motor, bedding, the cook stove and dishes were loaned us from the U. S. National Forest Service and State Conservation Department.

The camp structures included one mess, one kitchen, one office, six sleeping tents, screened meat house, root cellar, latrine, a 10-foot garbage pit with a frame cover, and a well with pump. The camp was inspected by a representative of the Minnesota Board of Health and pronounced in a sanitary condition in all respects.

There is a very large area in northeastern Minnesota inaccessible, but which contains substantial acreages of excellent white pine. The only feasible way to furnish protection to these areas is by means of small, portable camps. The area contains large numbers of narrow lakes, making it necessary to use small boat transportation and portages. The rust is abundant and widespread in this general region.

Because of the necessity for protecting these pines by means of eradication camps, activities during the winter months of 1939 and 1940 have been directed toward the preparation of portable camp equipment. During the winters of 1939 and 1940 there have been constructed a 60-man mess hall, tent floors, portable meat house, two boats and an automobile trailer. Blueprints for the preparation of mess hall and tent floors were obtained from our Spokane Office.

For more complete description of this camp, reference is made to the 1939 Annual Report for Minnesota and a report on the McFarland Lake White Pine Blister Rust Control Working Circle in District No. 2.

Ohio. Local control in Ohio during 1939 was performed by state CCC, Soil Conservation CCC, the Federal WPA and state WPA programs.

In initial eradication 3,877 acres of white pine and white pine planting sites were protected by removing 1,000,419 ribes from 74,861 acres, at a cost of 10,370 man-days.

In second eradication 1,115 acres of white pine were protected by removing 146,376 ribes from 14,972 acres at a cost of 2,502 man-days.

Of the 89 823 acres worked in 1939, 74,861 acres, or 83%, were worked initially, and 14,972 acres, or 17%, were worked for the second time.

Approximately 29% of the acreage worked in 1939 was covered by crew and 71% by scout.

The relatively large state WPA program was chiefly responsible for the large amount of local control work performed in 1939, covering approximately 65% of the acreage worked. Approximately 24% of the acreage worked was covered by federal WPA, leaving 10% and 1% administered by the Soil Conservation Service and state, respectively.

Due chiefly to the state WPA project, over three times as much acreage was worked in Ohio in 1939 than in any previous year. The next largest year was in 1938 when 24,833 acres were covered.

Probably Ohio leads all the other states in this region in the planting of white pine for reforestation purposes by individuals. Approximately 75% of the acres protected in 1939 were in private ownership.

Wisconsin Local control work in Wisconsin, as in the past few years, was chiefly performed by means of the CCC program administered through the U. S. Forest Service, Indian Service and state, the WPA program and the State Conservation Department. A small amount of work was also performed by private individuals. Initially, 22,642 acres were protected in 1939 by the removal of 5,727,628 ribes from 74,360 acres, costing 23,842 man-days.

On second eradication, 9,514 acres were protected by removing 417,098 ribes from 24,295 acres, at a cost of 4,893 man-days.

Of the 98,655 acres worked in 1939, 74,360 acres, or 75%, were covered initially and 24,295 acres, or 25% were covered for the second time. Approximately 30% of the acreage worked was covered by crew and 70% by scout.

There was a total of 22,542 acres of white pine and white pine planting sites given initial protection in 1939. The WPA program was responsible for the protection of 17,871 acres, or 79%. Under the CCC program 3,367 acres, or 15%, were protected. Regular, state and private funds were responsible for the remaining 1,304 acres, or 6%.

Approximately 65% of the acreage protected was in private ownership. Of the 35% remaining in public ownership nearly 50% was in the Forest Service. The use of WPA funds was chiefly devoted to the protection of privately-owned white pine while CCC funds were almost entirely used on pines in some form of public ownership, chiefly Forest Service and Indian Service.

Local Control Accomplishments to December 31, 1939

In Table 17 there is shown a summary statement of total white pine stands protected, both native, planted and planting sites, in relation to the total acreage worth protecting by states. For the region as a whole, of the 1,258,928 acres worth protection, 762,747 acres or 60.6% have been given initial protection. In second eradication 7.6% has been covered.

In percent protected, Illinois leads all of the states with 97.4% and 42.2% given initial and second eradications, respectively. Among the states in this region, Illinois has been the least active in the artificial establishment of white pine stands for reforestation purposes. However, activity along this line is becoming increasingly evident. Thus the control program is fairly well accomplished initially and it will be necessary in the future only to protect additional pine stands as they are established and to do subsequent eradication where that is needed.

In Indiana also the initial work around existing white pine stands is nearly completed, with 94.9% protected. The planting program in Indiana is more active and it will probably be necessary to do a small amount of eradication work each year in order to keep abreast of the planting program.

In Michigan and Wisconsin the initial work shows 41.3% and 38.9% completed, respectively. Second eradication in these two states has also been done to any great extent.

In Minnesota only approximately half of the white pine stands have been initially protected. Rusts are probably more abundant and more generally distributed in Minnesota than in any of the other states. For this reason it has not been possible to accomplish as much local control with the same amount of effort as in the other states.

While only 45% of the white pine shelterbelts in Iowa have been given initial protection, it should be remarked that the shelterbelts which have been protected lie in the northeastern quarter of the state where shelterbelts are most numerous. It is entirely possible that part of the remaining 55% unprotected may not be protected for some time because many of these shelterbelts are scattered throughout other portions of the state.

Ohio continues to be the most active state in this region in the planting of white pine for reforestation purposes by individuals. The Soil Conservation Service in that state has given added impetus to this work. However, in spite of the increase in white pine to be protected in 1939, over 1938, the percent of pine initially protected has jumped from 62.9% in 1938 to 76.0% in 1939. Also, there has been a substantial accomplishment in second eradication in Ohio. Note that 78% of the white pines have been given a second working. These accomplishments are, to a large degree, chargeable to the state WPA program in effect during 1939.

In Tables 18, 19 and 20 there are shown the acreages of white pine and white pine planting sites worth protection and protected to date by states, ownership classes and agencies and by initial, second and third workings, respectively.

The material in Table 18 is shown graphically in Chart 6 by ownership classes for the region as a whole.

In Chart 6 it may be noted that in the six ownership classes shown the highest percent of white pine and white pine planting sites initially protected are under county and municipal ownership with 51.2% initially protected.

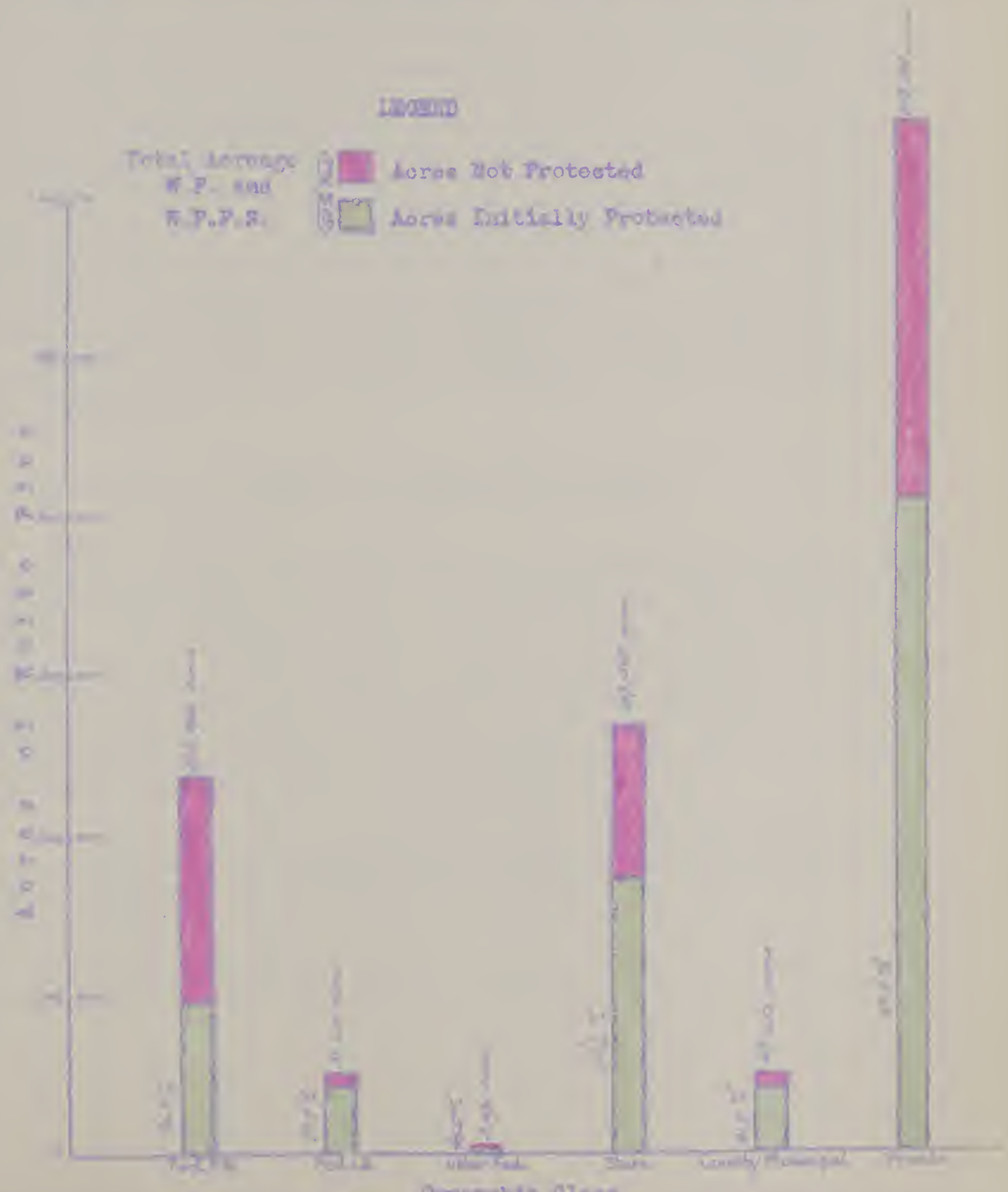
Of the 51,650 acres of white pine in the Federal Indian Service 78.4% has been given initial protection.

The lowest percent of white pine areas in any ownership class initially protected occurs under Federal Forest Service ownership, with 40.8% initially protected. In explanation, thousands of acres of white pine, chiefly on the Superior and Chippewa National Forests of Minnesota, are listed as worthy of protection but are inaccessible at the present time. If Minnesota is excluded, the percent of white pine, both native and planted, initially protected in Wisconsin and Michigan would be much higher. This is particularly true of white pine plantations established

CHART 9

ACRES OF WHITE PINE AND EFFECTIVE PLANTING SITES LISTED FOR PROTECTION, AND INITIALLY PROTECTED TO DEC. 31 1939, EASTERN CENTRAL REGION
BASED ON TABLE 18

Ownership Class	Total Acres White Pine	Percent in Each Class	Acres Initially Protected	Percent Initially Protected
Federal Forest Service	236,903	12.0	96,522	40.7
Federal Indian Service	51,650	2.3	41,015	79.4
Other Federal	3,000	0.3	1,407	45.5
State	269,568	21.4	173,217	64.2
County, Municipal	19,553	3.9	12,007	61.9
Private	648,284	51.5	409,979	63.2
Total	1,958,963	100.0	782,747	40.1



by the Forest Service. Owing to the policy of planting white pines only on areas free from ribes, or relatively so, and the removal of ribes at time of planting, practically all of the white pine plantations established recently on national forests have been given initial protection.

On all classes of ownership there is a fairly uniform percent initially protected. It is thus apparent that regardless of ownership the control program is being quite uniformly applied to white pine stands in the region.

On the basis of control area, there is shown, in Table 21, the summary status of the work in each state. This table gives the total acreage in control area classified as native, planted and planting sites; acreage given initial eradication; acreage covered by pre-eradication survey but not worked; and the acreage neither worked nor surveyed. The acreage initially worked is shown in Table 21, divided into gross and net. This is the first time these terms have been used in our annual reports. The gross acreage is the total acreage initially cleared of ribes. The net acreage refers to that acreage in which the pine values are still present and which will be worth continuing in a protected status as long as the values remain. The difference between gross and net, therefore, represents those areas in which, due either to fire, cutting or some other cause, the original pine values have disappeared. A determination of whether an area is gross or net is dependent upon an examination following initial working. This phase of the program has only begun in this region and hence there is only a difference in these two columns to the extent of less than 5,000 acres in Wisconsin and less than 200 acres in Michigan.

In order to show graphically the data presented in Table 21, Chart 6 has been prepared, showing the information by states.

In Table 22 there are shown the acres protected, acres worked, ribes pulled, man-days and cost of initial, second and third eradications by years for the region as a whole. This material is shown graphically in Chart 7. The tremendous impetus given to control work in this region, due to the various emergency relief programs from 1934 to 1938, is strikingly brought out in relation to that performed from 1917 to 1933, inclusive. For example, in 1934 alone more than twice as many acres were cleared of ribes initially as was done in the 17 years previous. The acreage worked both initially and in second eradication can be compared in this chart both on a yearly and cumulative basis.

In Tables 23 to 25 are shown by national forests the amount of initial control work performed each year by the Forest Service and by the Bureau. In Table 26 the information is summarized for all of the national forests.

In Tables 27 to 30 is shown the same information covering second eradication.

Chart 6

Growing Stock of Covered Areas by States to December 31, 1954
North Central Region. Based on Table 21

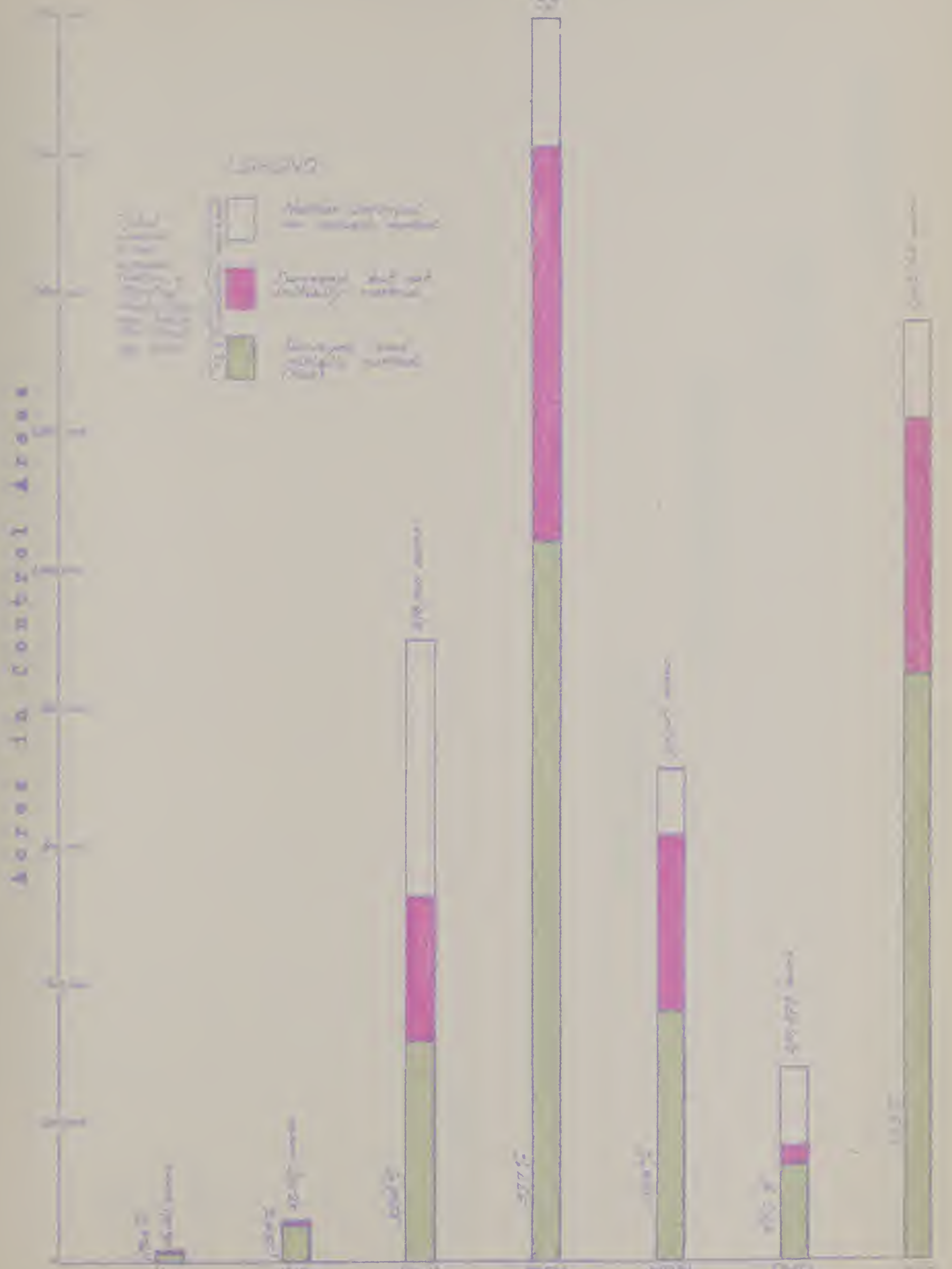
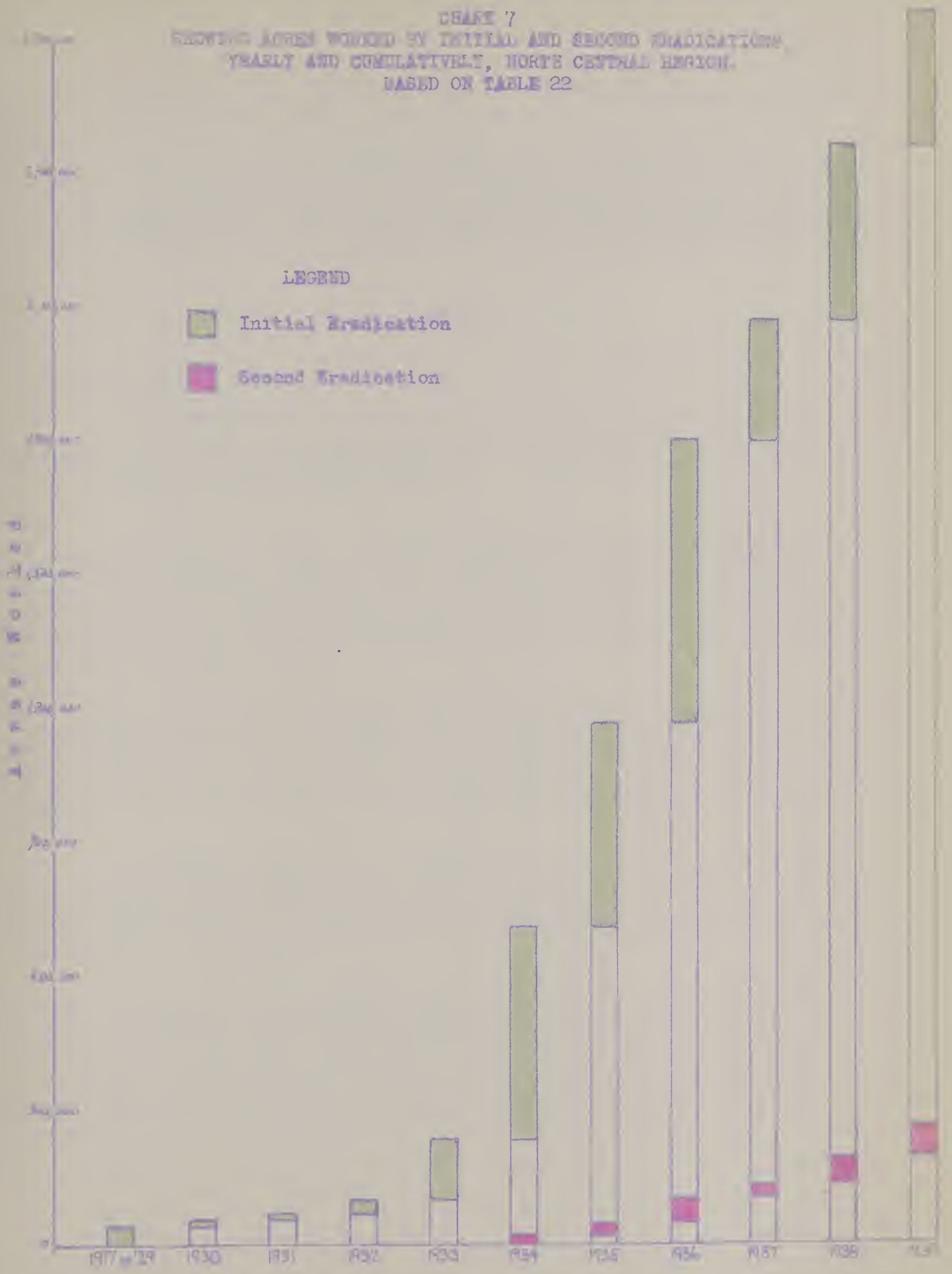


CHART 7

SHOWING ACRES WORKED BY INITIAL AND SECOND ERADICATIONS, YEARLY AND CUMULATIVELY, NORTH CENTRAL REGION.

BASED ON TABLE 22



Years in Which Dikes Eradication was Performed

In Tables 31 to 37 the same type of information is shown for Indian Reservations in this region.

These tables are decidedly longer than in other years because of the advisability of segregating the work performed each year by the Bureau and by the agency administering the lands. These tables are of value chiefly as reference tables. They form the basis for yearly and cumulative figures on local control on national forests and Indian Service lands in the region.

Checking

Regular Check

The usual method of determining the completeness of ribes eradications, namely the two percent systematic check as used in this region since 1931, continued in effect in 1939. A discussion of this method may be found in the 1937 Annual Report.

In Table 38 there is shown, by states, results of checking after ribes eradication in 1939. It will be noted that 202,970 acres worked to 1939 were checked by counting ribes bushes and feet of live stem on a total of 5,934.8 acres in check strips. This amounted to a 2.92% check. Incidentally, since each strip acre is 50 chains long and one-fifth of a chain wide, it follows that the 5,934.8 acres in check strips represent nearly 3,710 miles of strip.

For the region as a whole, the average ribes per acre after eradication was found to be 2.1 bushes and 4.4 feet of live stem. The average ribes content after eradication following lowland crew was 2.3 bushes and 13.6 feet of live stem per acre; in upland crew 3.7 bushes and 7.5 feet of live stem; and on scout work 0.3 bushes and 1.7 feet of live stem per acre.

In studying the results of checking in the different states there is remarkable uniformity in the results. The feet of live stem per acre after eradication varied narrowly from 3.5 in Indiana to 5.7 in Ohio. The number of bushes left per acre after eradication varied from 0.6 in Iowa to 2.8 in Michigan.

These are average figures and necessarily represent a wide variation of checking results on the 2,028 areas making up the average. In order to present a more complete picture concerning the status of areas after ribes eradication, the number of acres in varying ribes feet of live stem per acre classes are shown in the last four columns of Table 38. This material is shown graphically in Chart 8 which is based on Table 38A.

CHART 8

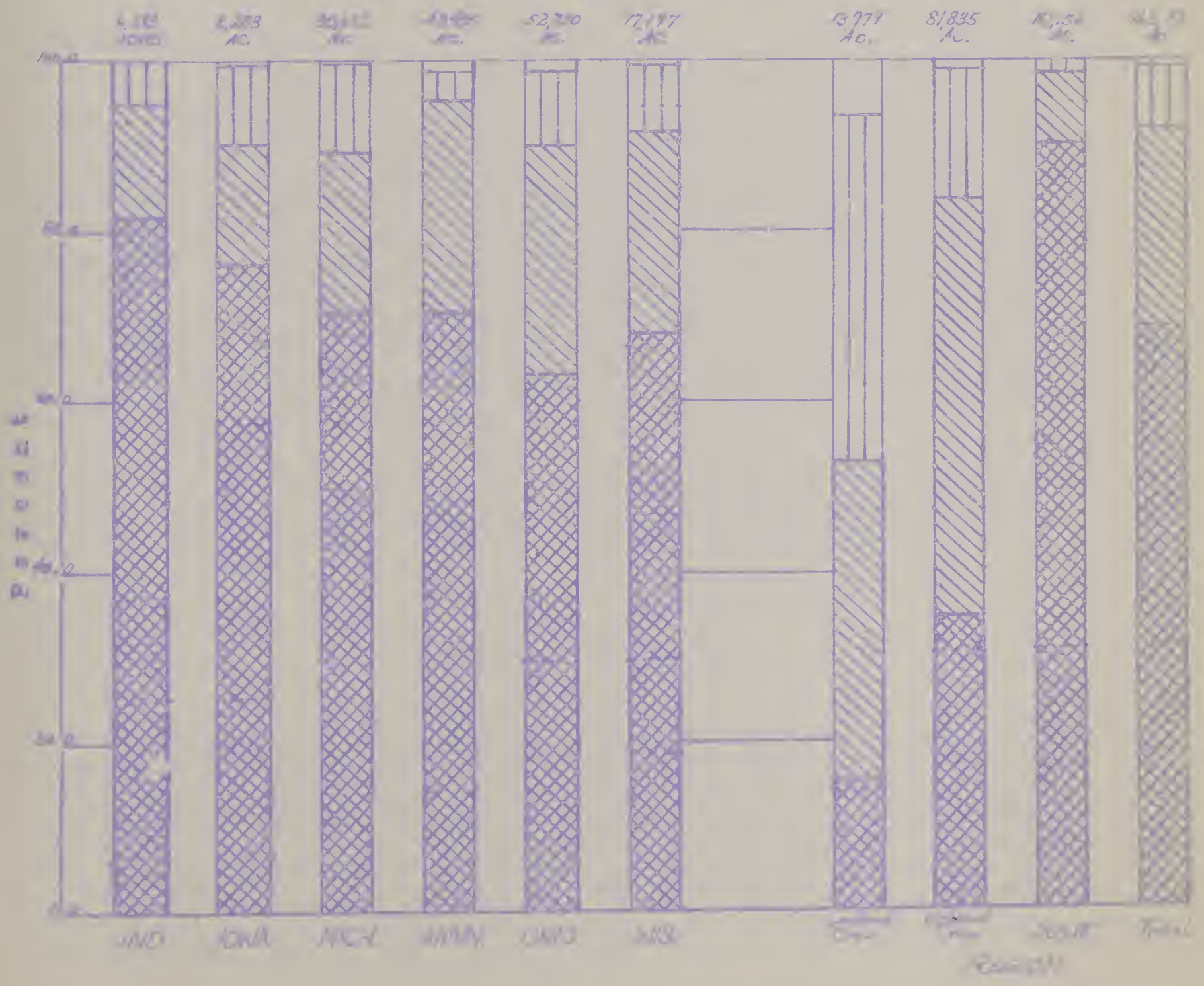
PERCENT OF ACRES WORKED AND CHECKED IN EACH CLASS OF LIVE STEM CLASS IN STATES AND BY EXAMINATION TYPES FOR NORTH CENTRAL REGION 1952
BASED ON TABLES 30A AND 30B

PERCENT OF ACRES WORKED IN EACH RIBBS FEET OF LIVE STEM CLASS

State	Acres Worked and Checked	Ribes Feet of live Stem Classes after Eradication				
		0.0-5.0	5.1-15.0	15.1-25.0	Over 25.0	Total
Indiana	6,693	31.6%	13.1%	5.3%	-	100.0%
Iowa	2,283	76.0	14.5	9.2	0.3	100.0
Michigan	80,632	70.4	16.6	10.4	0.6	100.0
Minnesota	43,435	70.4	25.3	2.7	1.6	100.0
Ohio	52,730	63.3	26.2	9.1	1.3	100.0
Wisconsin	77,197	67.9	23.9	7.9	0.3	100.0
Region-lowland grow	15,570	15.7	57.0	20.7	5.6	100.0
Region-upland grow	83,395	34.4	18.4	15.4	1.4	100.0
Region-scout	167,196	89.8	6.3	3.9	-	100.0
Region Totals	252,370	78.6	25.3	6.0	0.6	100.0

LEGEND

Over 25.0 F.L.S. per acre
15.1-25.0 F.L.S. per acre
5.1-15.0 F.L.S. per acre
0.0-5.0 F.L.S. per acre.



The checking standard used in this region ever since the work started in 1931 is 25 feet of live stem per acre. If the results of checking show substantially more than 25 feet of live stem per acre, rework of the area is recommended. If less than 25 feet of live stem per acre are found, the area is considered as satisfactorily worked. With reference to Chart 8, it is gratifying to note that for the region as a whole 99.2% of the 262,970 acres checked showed less than 25 feet of live stem per acre. In Indiana all of the acres checked were satisfactory. In Iowa and Wisconsin only 0.3% showed acreages with ribes exceeding 25 feet of live stem per acre. In Michigan 0.6%, in Ohio 1.3%, and in Minnesota 1.6% of the acreages checked showed over 25 feet of live stem per acre. It is extremely gratifying to note the high percent of areas satisfactorily worked in 1939.

In considering the results of checking separately for lowland crew, upland crew and scout, a decided difference in results will be noted. The largest percentage of acreages showing more than 25 feet of live stem per acre, 6.6%, occurred on lowland crew areas; 1.3% was found not satisfactorily worked on upland crew areas; and all of the areas were satisfactorily worked on scout areas.

Post-Check

For the first time in this region an attempt was made in 1939 to make a post-check of areas worked four or more years previously. Post-checking consists in an examination of an area several years after initial working to determine whether the area needs reworking immediately, in the indefinite future, or can be placed on maintenance as requiring no additional working until changed conditions might affect the present ribes free condition. In making the post-check, the regular checking methods were used. The area was covered by check strips and number of bushes and feet of live stem was recorded and plotted by five chain units on a map. From the map and data it was then possible to show what areas required reworking and what areas were ribes free. Only a small amount of this kind of work was done in 1939. It is planned to do a great deal more of this work in the future.

In Table 39 the small amount of post-checking performed in this region is shown. It may be noted that of the 25 areas examined, rework was considered necessary in 22 of them and three areas were on a maintenance basis.

Nursery Sanitation

During the spring of 1939, 35 nurseries were either worked for the first time or checked for ribes within the 1500 foot zone and for cultivated black currant bushes within a mile. Due to a revision of Federal Quarantine No. 63, made in 1938, the responsibility of issuing permits for the shipment of white pine was shifted from the Division of Domestic Plant Quarantines to the Nursery Inspection Service in each state. Permission to ship white pine from all of the 35 nurseries worked in 1939 was granted by the state agency concerned.

In Table 40 there is shown a statement of nursery sanitation performed in 1939 in the region. Summaries of this work and number of white pines in protected nurseries are shown following:

Summary of Nursery Sanitation
Performed in North Central Region, 1939

Ownership Class	Number of Nurseries	Acres Protected	Acres Worked	Ribes Pulled	Man Days Used
U.S.F.S.	7	531	3,501	5,029	205
U.S.I.S.	1	7	280	2,885	40
U.S.S.C.S.	5	150	1,711	200	9
State	12	769	5,692	28,899	320
Private	10	151	2,896	23,000	76
Total	35	1,608	13,980	60,013	651

Number of White Pines Growing in Nurseries Protected in 1939
North Central Region

State	USFS	USIS	USSCS	State	Private	Total
Illinois				200,000	19,000	219,000
Indiana			267,950	50,000		317,950
Iowa			369,000			369,000
Michigan	6,174,550			6,105,800	34,600	12,314,950
Minnesota	4,476,700	302,000	959,000	3,750,024		9,487,724
Ohio	2,480		5,300,000	771,666	202,000	6,276,146
Wisconsin	2,500,000			15,509,000		18,009,000
Total	13,153,730	302,000	6,895,950	26,386,490	255,600	46,994,770

Cultivated Black Currant Elimination

Initial cultivated black currant elimination work was carried on in Iowa, Michigan and Wisconsin; and recheck work was done in Iowa, Michigan, Minnesota, Ohio and Wisconsin. The results of this work are shown in Table 41. In initial work a total of 7,171 bushes were found growing in 1,166 properties. A total of 7,772 bushes growing on 1,240 properties were destroyed. The reason that 601 more bushes were destroyed in 1939 than were found in 1939 is that the bushes destroyed included certain ones which had been found previously. On the average there were 6.4 locations of cultivated black currants per 1,000 properties inspected, and 6.2 bushes per location.

In recheck work 3,856 bushes were found at 762 locations. Of these totals, 2,612 bushes were destroyed, growing on 500 properties. In recheck work there was an average of 3.34 locations per 1,000 properties examined and 5.1 bushes per location.

Initial work has virtually been completed in the region with the exception of those portions of Iowa where additional shelterbelt protection is contemplated and within the mile zone of pine stands protected in states that have not put on a systematic black currant elimination campaign.

Recheck work in Michigan and Wisconsin is nearly completed. There remains a limited amount of recheck work to be done in Minnesota.

In Table 41A there is shown an analysis of cultivated black currant recheck work performed in Michigan, Minnesota and Wisconsin. It will be noted that the percent of bushes found originally in Michigan, Minnesota and Wisconsin was respectively 88.5%, 92.7% and 93.7%. For the region as a whole 90.9% of the black currant locations were found initially.

Found on the recheck in Michigan, Minnesota and Wisconsin, were 307 locations containing 1,076 bushes. Of the 307 locations, 222 were missed originally; two were seedlings; 21 were sprouts; and 62 had been planted since the original work. One of the important results of cultivated black currant recheck work is the educational value. The importance of getting rid of cultivated black currants in pine growing counties is again emphasized to owners of these bushes. The recheck is also effective in discouraging the reestablishment of these bushes on the owners' assumption that no further attention will be given to the black currant work after the initial eradication.

In Table 42 there is given the cumulative summary of black currant eradication to date. There have been found in the region 283,287 bushes growing at 34,229 locations. Of this total 273,070 bushes growing at 32,634 locations have been destroyed. On the basis of bushes, therefore, 96.4% of all black currant bushes found have been destroyed.

Classified as "hold outs" are 1,619 bushes growing at 187 locations. A "hold out" refers to an owner who refuses to give up his cultivated black currant bushes under any consideration. It is remarkable that out of 34,229 locations found there were only 187 or approximately .5% who are classified as "hold outs".

Canker Pruning

Canker elimination, as performed in 1937 and 1938, was continued during 1939. This activity was restricted to such areas as parks, cemeteries and roadsides where each white pine tree has considerable value and where the stand has been protected against blister rust. Cankers

removed from such areas not only restore the attractiveness of the trees but also prolong their lives. Canker removal forestalls the possibility of misunderstanding on the part of the general public and questioning of effectiveness of control work. In Table 45 there is shown a statement of canker pruning done in 1939. In Table 46 this same information is shown cumulatively to December 31, 1939.

Field Studies

Milwaukee Office

Under the direction of Dr. Hosmer, studies in the effectiveness of control in the region were continued. In general, these studies can be divided into two parts: (1) Studies of the effect of ribes eradication on canker production, and the distance of spread of the rust from ribes to pines, particularly from swamp ribes; and (2) Studies in the regeneration of ribes following eradication.

The results of this work have been and are being summarized by Dr. Hosmer in individual reports and will not be repeated here.

Pine Infection Survey

In Wisconsin, a strip survey was made during the winter on 24 areas in Burnett, Polk and Portage Counties by the district leaders, in cooperation with Dr. Hosmer of the Milwaukee Office. The results and discussion of this survey work are quoted following from the Wisconsin Annual Report for 1939:

"During late winter a survey was made of 23 pine areas in Burnett County, three pine areas in Polk County, and ten pine areas in Portage County, to determine whether white pines on these areas were infected with blister rust and, if so, to what extent. Pine areas of varied sizes were selected for this study so that a representative sample might be obtained. The strip survey method was used. A crew consisted of two readers and a recorder. Each of the two readers carried a 6.6-foot stick so that he could measure exactly his portion of the strip which was 13.2 feet wide. Insofar as practicable, strip lines paralleled fence lines so that subsequent data could be taken on these same strips. Known corners were used as starting and as ending points. A steel tape was used to determine the distance covered. The first reader to reach the end of the chain pulled the tape ahead, drove a temporary stake at its end, and then returned to his original position.

"Mimeographed Form CO-7 (Misc.), prepared in cooperation with Messrs. Putnam and the 1 district Agents, was used to compile the infection data. The summary of this survey follows:

County	No. Areas	Strip Survey (Acres)	Total No. Trees Examined	White Pines Examined: Not Infected	Infected	Killed by B.R.	Total Trees Infected & Killed	Total Number of Cankers	% Trees Examined Infected and/or Killed
Burnett	23	122.8	12254	12,014	187	53	240	290	2.0
Polk	3	23.1	8260	7,888	329	275	604	804	7.3
Portage	10	86.3	29813	27,350	1,980	483	2,503	4,214	8.3
Total	35	232.0	50327	47,020	2,498	821	3,317	5,308	6.6

"It will be noted that 6.6 percent of the white pines examined were infected and/or killed by blister rust. Since trees after infection die and disintegrate, the cumulative amount of infection on these areas undoubtedly is higher, perhaps much higher than that actually recorded. It was impossible to obtain data on decomposed trees. More accurate information on amount of pine infection is being collected at established Pine Infection Study Plots in Wisconsin. On These plots a white stake is placed near each infected tree; after the tree disintegrates the stake marks the spot where the tree had stood."

Ribes Key

An excellent ribes key was prepared by Dr. M. T. Darlington of the Botany Department, Michigan State College, and published by the College Experiment Station. This key covers both the winter and summer characteristics of the Ribes species commonly found in this region. The specific title is "Circular Bulletin 170, Key to the Species of Ribes Occurring in The Great Lakes Region." Copies may be obtained upon request to the College or to the Milwaukee or Lansing Blister Rust Control Offices.

Control Zone Boundary Marking

The marking of control zone limits either by paint or use of lath, as performed in 1937 and 1938, was continued in 1939. A description of this activity will be found in the 1937 Annual Report. The results of this work are shown in Table 45 for 1939 and in Table 46 cumulatively to the end of 1939. During 1939, 575 miles of boundary were marked in Michigan and Minnesota by the expenditure of 620 man-days or $2,467.25. A total of 341 areas containing 59,366 acres were marked, thus the cost per mile of boundary marked was approximately 1.2 man-days or $4.29. The cost per acre, included in the control zones so marked, was approximately 4¢.

Japanese Beetle Traps

In continued cooperation with the Division of Japanese Beetle Control, approximately 12 Japanese beetle traps were placed in each of the cities of

Lansing, Newaygo, Escanaba, Michigan; Milwaukee, Stevens Point and Menominie, Wisconsin; North Branch, Walker and Duluth, Minnesota; Ames, Iowa; and Wooster, Ohio. Traps were examined at periodic intervals throughout the summer. No Japanese beetles were reported.

Specimens of all beetles found were sent to Dr. Philip Luginbill, Senior Entomologist, Division of Cereal and Forage Insect Investigations, Lafayette, Indiana. From Milwaukee alone five different species of Phyllophaga adults were collected in Japanese beetle traps reported to Dr. Luginbill and identified by him.

Informational Activities

The success of a blister rust control program is dependent upon support on the part of the public, and particularly support from white pine owners. We are working on the control of a disease which for its success depends upon performing the work before blister rust has reached pine stands or before serious damage has occurred. Except in relatively few places the damage caused by blister rust cannot be seen or demonstrated. In many respects blister rust control is similar to an insurance policy, in which the control work would correspond to the premiums paid in insuring a stand against damage from blister rust from youth to maturity. It is important that the general public understands the damage caused by blister rust and the effective and economical methods of its control.

During 1939 the usual methods of disseminating information on blister rust and its control were through the newspapers, state and county fairs, talks and pictures before schools and other groups, and the distribution of literature primarily in connection with cultivated black currant eradication and other activities. Informational work done in each state is summarized briefly as follows:

Illinois In addition to the usual blister rust control bulletins and leaflets distributed to white pine and black currant owners, approximately 200 copies of a news article were distributed to local newspapers for publication. In addition, posters and transparency pictures were displayed at the State Fair, International Livestock Show and State Nurserymen's Convention.

Indiana Federal blister rust bulletins were distributed to pine owners and others interested in control work. Soil Conservation Service employees were instructed as to the methods of control work.

Iowa In Iowa the principal method of contacting the public has been by personal interviews by foremen of field crews. These men distribute the blister rust bulletins and pamphlets, describe the disease and its control.

Michigan Informational activities were conducted chiefly through newspaper articles, window displays, trips to infection areas, talks, fair exhibits and through direct contacts by agents and field workers.

A blister rust exhibit was assembled in compact form and displayed at numerous fairs in connection with the Michigan Department of Agriculture exhibits. Later the display cases were loaned to a number of high schools.

Minnesota Informational activities did not receive as much attention in 1939 as in previous years. During the year 18 newspaper articles were published with a total column space of 203 inches. Nine window displays were put up. Exhibits were placed in four county fairs. It is estimated that a total of 392,000 people were reached by these fair displays.

Two field trips of importance were made during the year. A group of selected girl scouts camping on McFarland Lake were taken on a tour of the operations conducted by the McFarland Lake Eradication Camp. The agricultural class of the Rushford High School was conducted on a field trip. A reporter from the Winona Republican Herald was taken on a field trip which resulted in a full page article on blister rust control in that newspaper.

During the year four talks on blister rust control were given by members of the blister rust control organization.

Ohio Moving pictures of ribes eradication were shown by Mr. Dowd at several places, including CCC Camps. A large number of bulletins were distributed to pine owners and other interested people during the course of the year.

Wisconsin In addition to the usual methods of distributing information on blister rust and its control, including newspaper articles, talks and displays, the Wisconsin Department of Agriculture published Bulletin No. 204, "White Pine Blister Rust in Wisconsin." Approximately 5,000 of these bulletins have been distributed throughout the state. The entire content of the bulletin was also printed verbatim in the April 1939 issue of the "Wisconsin Conservation Department Bulletin." Over 15,000 copies of this bulletin were sent out by the Wisconsin Conservation Department.

The blister rust control window display showing the contrast between healthy and infected pines was placed in a general store at Balsam Lake in Polk County. It apparently aroused considerable enthusiasm since invitations were received from merchants in nearby villages asking for similar displays for their stores.

A blister rust control demonstration was held at the Vilas County Fair with 20,000 persons attending.

Arranged by the University of Wisconsin, 61 Junior Forest Rangers took a field trip to the Dells of the Wisconsin River. Blister rust on pine and ribes was shown to these 4-H Club members.

A white pine blister rust control display was placed at the Wisconsin State Fair at Milwaukee. An all-time record attendance of over 500,000 persons attended this fair. The display was placed in a permanent position in the Plants and Flowers Building located on the main thoroughfare.

An exhibit was placed in Milwaukee at the Midsummer Festival, lasting from July 6 to 16. Based on counts made, it is estimated that 150,000 people saw the exhibit. Approximately 12,000 blister rust control life cycle leaflets were distributed.

Costs

Costs for 1939

Cost figures for expenditures in the Milwaukee Office are shown in Tables 47 and 48. In Table 49 the regional expenditures are shown for the calendar year 1939, classified according to state and program. In Table 50 regional expenditures are shown, classified according to state and activity. Table 51 shows the division of regional expenditures and the wages and other than wages. In Table 52 there is given by states, actual man-months, expenditures and cost per man-month of project funds, exclusive of WPA administrative funds for the North Central Region, during 1939.

The total expenditures from all sources during 1939 amounted to $484,269.70. This was approximately $10,700.00 less than was spent in 1938. Chart 9, based on Table 49, shows the percentage of the total expenditure in each state, including the Milwaukee Office.

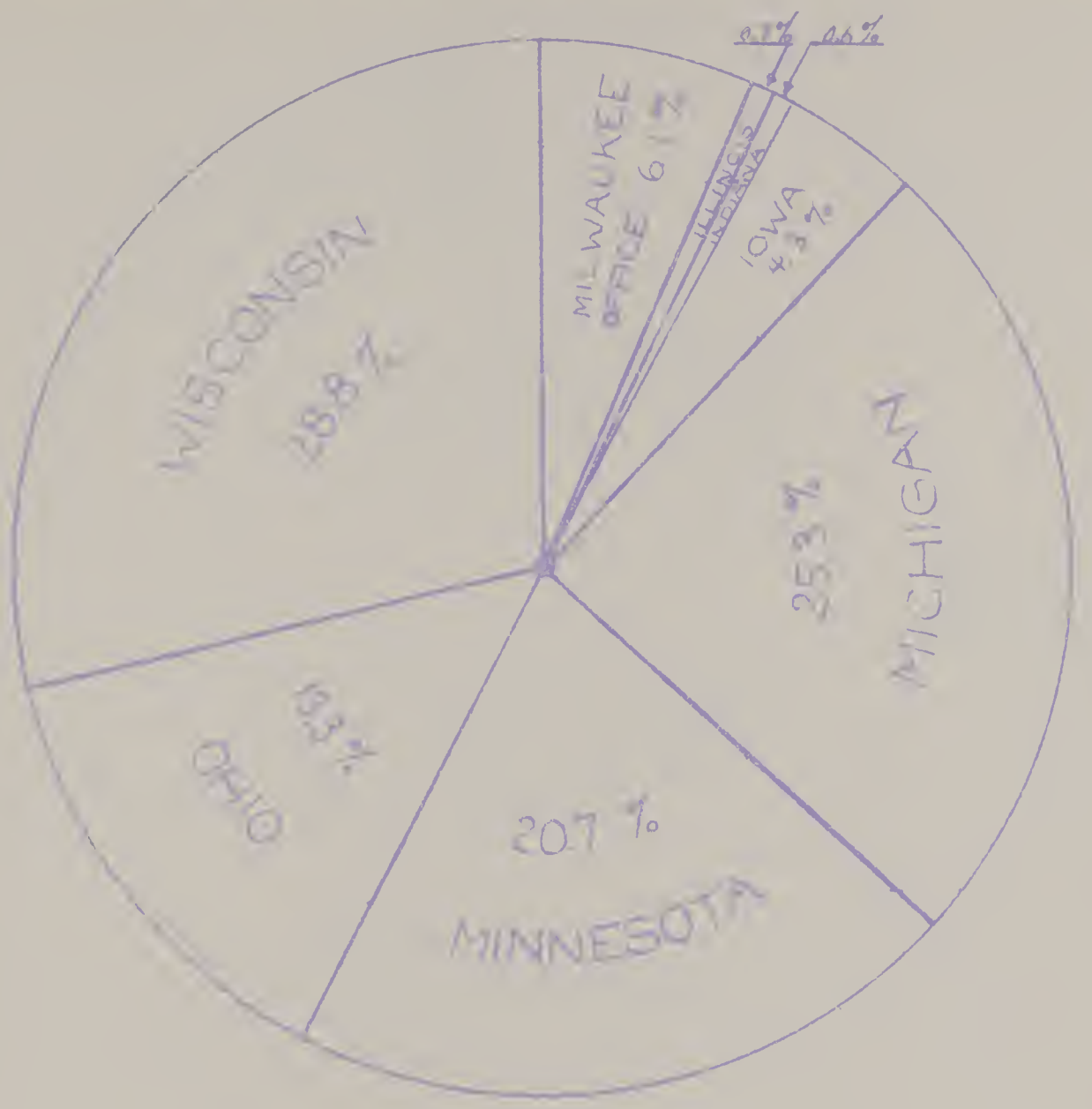
In comparing this chart with a similar chart for 1938, it will be noted that the percentage spent in each state is fairly comparable in the two years, with the exception that the expenditure in Ohio amounted to 13.3% in 1939 compared with 7.2% in 1938. This increase in Ohio expenditures is chargeable chiefly to the relatively large state-sponsored blister rust control program operated in that state in 1939.

In Table 50 the total expenditures are shown, classified according to activity. This material is shown graphically in Chart 10.

In comparing this chart with a similar chart for 1938, it will be noted that the chief difference lies in the proportional increase of expenditures for local control in 1939 over 1938 and the corresponding decrease in cost of general control. In spite of spending approximately $10,700.00 less in 1939 than in 1938, it will be noted that nearly $7,000.00 more was spent on ribes eradication in 1939 than in 1938.

An explanation is in order concerning the relatively high percentage, 24.8%, charged to general supervision. In classifying expenditures the full time of state and district leaders and the operation of their offices are charged to general supervision. A substantial amount of time of state and district leaders is actually spent in other activities although their costs are still charged to general supervision, for simplicity. In this region, in addition to the Milwaukee Office and its personnel, there were five full-time and two part-time state leaders and eight full-time district leaders. These men worked out of 14 offices besides the Milwaukee Office, the costs of which were chiefly charged to general supervision.

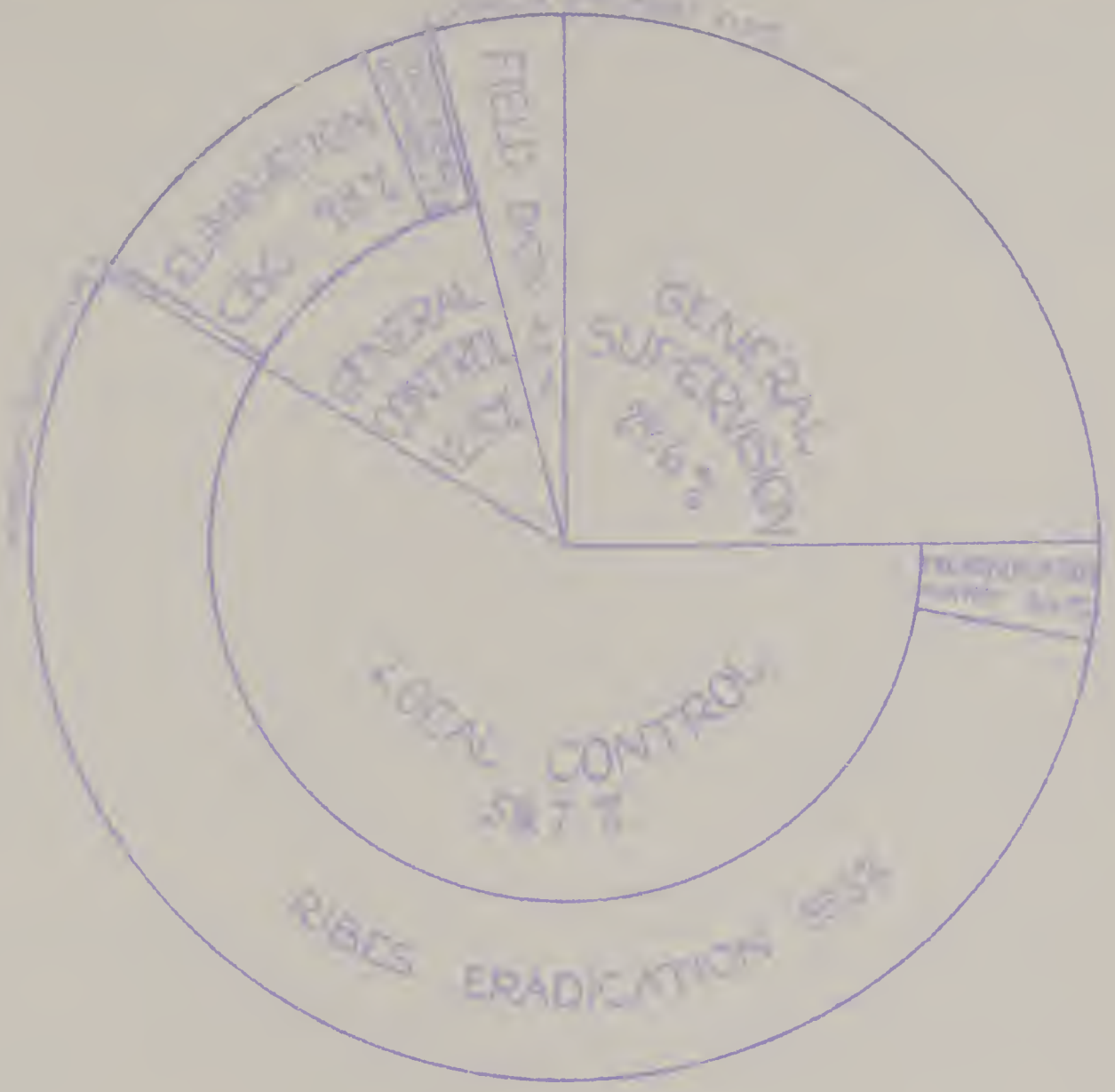
CHART 9
PERCENTAGE OF TOTAL NORTH CENTRAL REGIONAL EXPENDITURES SPENT IN EACH STATE, 1939. BASED ON TABLE 49



State	Amount	Percent of Total
Milwaukee Office	$ 29,672.09	6.1
Illinois	4,241.66	0.9
Indiana	2,892.99	0.6
Iowa	20,704.17	4.3
Michigan	122,795.02	25.3
Minnesota	100,260.18	20.7
Ohio	64,330.80	13.3
Wisconsin	139,372.99	28.8
Total	$484,269.90	100.0

CHART 10

PERCENTAGE OF TOTAL NORTH CENTRAL REGIONAL EXPENDITURES CHARGED TO DIFFERENT ACTIVITIES, 1939. BASED ON TABLE 30.



Item	Amount	Percent of Total
General Supervision	$ 115,692.67	8.0
Prerejection Survey	16,530.97	1.4
Dives Eradication	367,537.91	25.3
Local Local Control	201,07[illegible]	13.1
Norway Eradication	2,525.42	0.3
U.S.D.A. Eradication	47,461.21	3.8
Value-Cult. Dives Destroyed	2,337.50	1.4
Ownbar Projects	1,573.35	0.3
Total General Control	60,915.38	12.3
Field Data	20,123.77	1.4
Grand Total	[illegible]	100.0

In Table 49 the regional expenditures are shown classified by states and organizations. This material is shown graphically in Chart 11. The $484,285.90 spent in the region in 1939 was derived from the following four major sources: state and private 9.3%; regular 8.8%; emergency relief 63.6%; and CCC 18.6%. As in 1938, state and regular in 1939 contributed 17.6% of the funds and emergency sources furnished 82.1%. In 1938 there were approximately $16,800 more of emergency relief spent than in 1939. The federal WPA, however, spent approximately $15,600 less in 1939 than in 1938. The increase in state WPA from approximately $12,000 in 1938 to $46,000 in 1939 accounted for this difference.

The amount of funds spent by CCC in 1939, $88,700, was decidedly under the figure for 1938, approximately $34,800.

In Chart 12, also based on Table 49, there is shown graphically the percent of expenditures in each state, made by each general agency. This bar chart is intended to show relatively the portion of funds from various sources spent in each state. It will be noted that the State of Illinois furnished 61% of the funds spent in that state and WPA spent practically 39%. Ohio, with 3.8%, spent the lowest proportion of state funds of any of the states. In this chart the expenditures in the Milwaukee Office, largely on regular and WPA funds, have not been prorated to the states. If these expenditures had been prorated the percentage for federal, regular and WPA funds in each of the states would have been slightly higher.

In Table 50 the 1939 regional expenditures are shown by states, classified according to activity. This material is shown graphically in Chart 13. In considering these bar charts with particular reference to the percentage spent for general supervision, it will be noted that the States of Illinois and Indiana show the highest percent of general supervision. In explanation it can be stated that only a relatively small amount of funds was spent in each of these states. It was necessary for the state leader to do a large amount of the various field activities personally. He then was charged to general supervision although much of the work that he did could actually have been classified against the various field activities.

In Ohio the lowest percent of general supervision and the highest percent of ribes eradication of all of the states is very evident. The relatively large state-sponsored WPA project under the supervision of the state leader and devoted almost entirely to local control is responsible for this high percentage of ribes eradication work accomplished.

In Table 52 there is shown the actual man-months employed and expenditures for salaries and other than salaries on project funds allotted to the different states. This table is of considerable value for budget purposes. It will be noted that, for the region as a whole, the average salary paid per man-month was $64.83. The cost per man-month of non-salary items was $5.82, making an over-all man-month cost throughout the region of $80.15. The average monthly wage for certified employees was $48.59; for non-relief security wage earners $75.20; and for appointees $104.34. The reason that the appointees' average salary seems high is that it was necessary to carry some of our district agents for a considerable length of time on WPA funds, due to insufficient regular funds.

CHART II

PERCENTAGE OF TOTAL FUNDS DISTRIBUTED FEDERAL EXPENDITURES, DISTRICT OF COLUMBIA BY CONTRACTING AGENCIES 1939. SOURCE OF TABLE II.

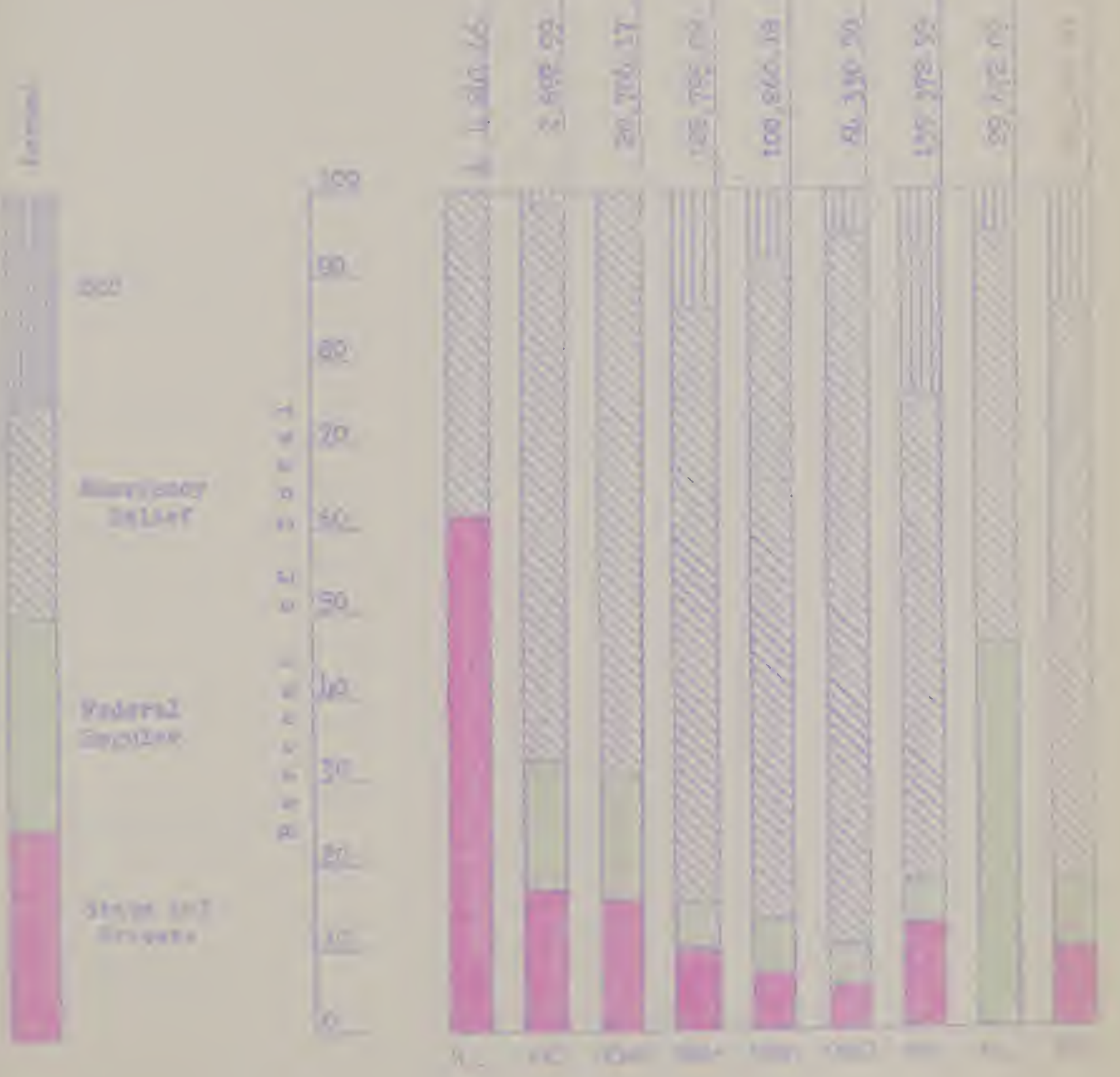


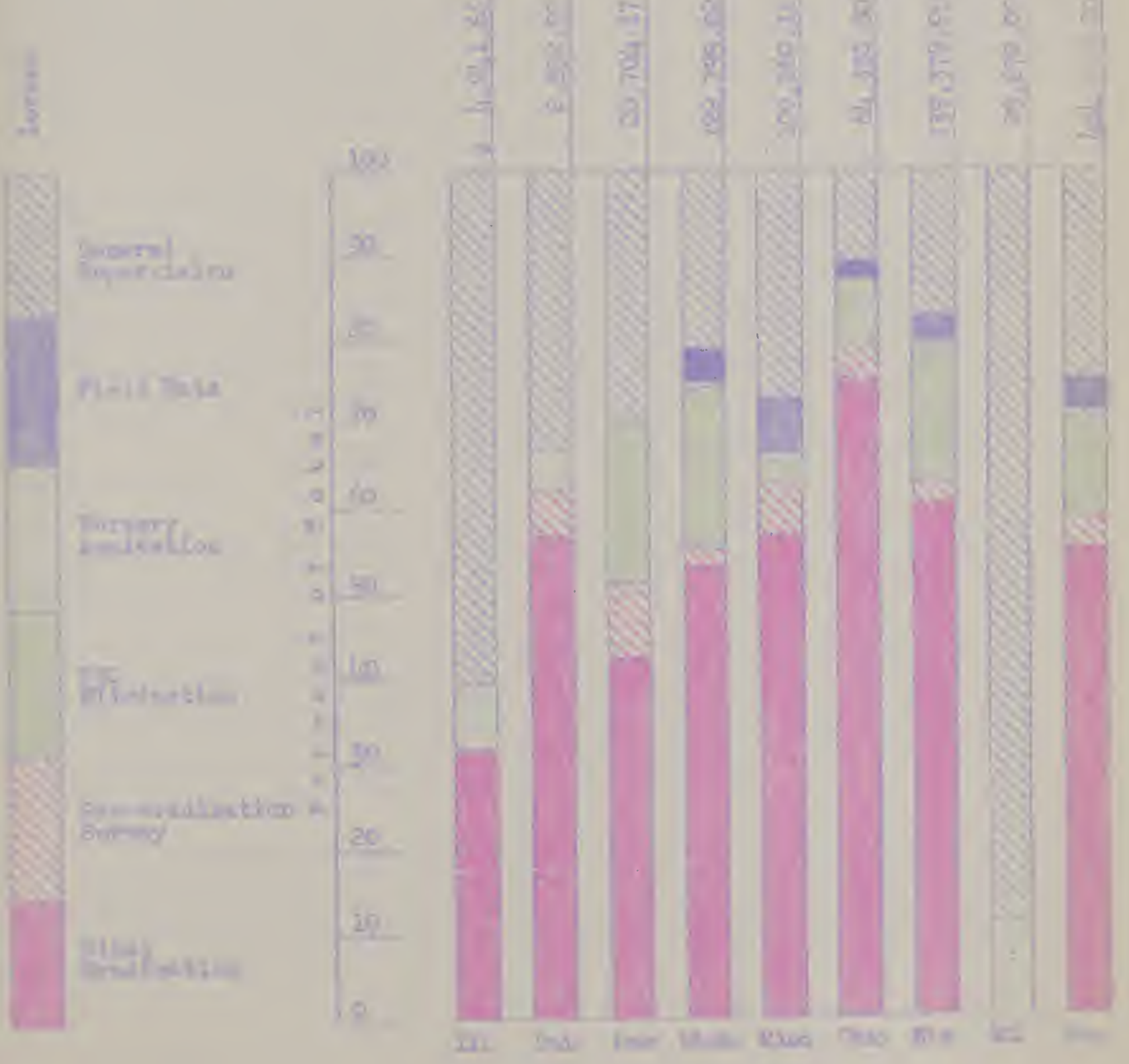
Agency	Amount	Percent of Total
Public and Private	[illegible]	[illegible]
Income Regular	10,207.06	1.5
Other Regular	1,333.16	0.2
Total [illegible]	[illegible]	[illegible]
Federal WPA	490,278.09	47.2
State WPA	4,065.37	2.5
Other RA and WPA	1,640.22	1.1
Total Relief [illegible]	[illegible]	[illegible]
P.W. - CCC	22,307.91	4.3
I.E. CCC	17,735.76	3.7
NYA - CCC	21,217.34	4.4
CCC-ECW and Penn CCC	1,825.57	0.4
Total CCC	[illegible]	[illegible]
Total Fund [illegible]	[illegible]	[illegible]

CHART 20

PERCENT OF EXPENDITURES OF TAXES RAISED LOCALLY BY EACH AGENCY
NORTH CENTRAL REGION, 1957 - STATE OF OHIO

Agency	Amount	All	2nd	Town	Twp	Municipality	City	Sch	Co	Other
State and Private	$45,617,33	61.3	93.7	98	15.2	5.3	5.2	5.2	12.5	-
Township Regular	43,135.14	-	26.5	16.7	5.8	6.7	6.8	14.5	13.6	
Township Relief	131,837.83	38.7	67.0	82.6	78.5	37.4	94.3	53.2	65.0	
Co.	36,736.66		1.3			21.5	1.1	1.1	25.2	5.2
Total	[illegible]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0




Acres
100
90
80
70
60
50
40
30
20
10
0
Irrigated Pasture
Field Crops
Orchard
Irrigation
Non-irrigated Pasture
Idle

Regional Expenditures to December 31, 1939

In Table 62A there is shown a summary of all elements of emergency relief project funds (exclusive of WPA administrative funds) administered by the Bureau as Federal agency projects in the North Central Region from July 1, 1933 to December 31, 1939 by states. These figures are taken from our books over the period of time prepared. This table is mainly of value as a reference table.

In Graph Table 64, Sheet 1, there is given a statement of total expenditures in this region from 1933 to 1939, inclusive, in the total amount of $4,275,640.04. This information is shown graphically in three ways by symbols and states.

It is interesting to note that for the region as a whole, for this period of 22 years, 10.7% of the total funds or $457,715.22 have been contributed from state and private sources. From regular appropriations 5.1% or $830,808.21 has been spent. In spite of the present very high percentage of emergency funds spent in this region, it is interesting to note that for the full 22-year period only slightly more than half, 51.7%, of the total funds have been furnished by such emergency relief agencies.

In considering the proportions of funds from different agencies spent in each state, it is interesting to note that, with the exception of Illinois, the bar charts are fairly comparable. In Illinois a huge amount of state and private funds, 23.0%, was been contributed. With particular reference to the small amount of federal regular funds spent for Illinois, it must be stated that the total amount of funds which is spent in this region do not include expenditures of the Milwaukee Office. If the Milwaukee state had been added and prorated to the various states, the proportionate amount of regular funds spent would have been increased.

Of all of the states, Wisconsin spent the highest percentage of regular funds.

The percentage of CCC funds spent in each state does not vary. Wisconsin, with 27.3% of its total funds contributed by the CCC, leads all of the states.

Chart 13, based on Graphic Table 64, Sheet 2, shows the percent of total expenditures since 1933 in each state, exclusive of Milwaukee, charged to the various activities. In this chart it may be noted that Wisconsin leads all the other states in the percentage of funds spent on rural rehabilitation, 34.4%. It is also one of the lowest in the percent of funds spent on general supervision, with 12.0%.

The highest proportion spent on cultivated black earners rehabilitation in any of the states occurred in Ohio. Two state-sponsored projects for the elimination of cultivated black earners from pine growing counties in Ohio are chiefly responsible for this high percentage of cost. The pine growing counties of Ohio are practically free from cultivated black earners

CHART 13

PERCENT OF EXPENDITURES IN EACH STATE, EXCLUSIVE OF SALARIES, WAGES ST SAME AGENCY, NORTH CENTRAL REGION, 1935 TO 1939, INCLUSIVE. BASED ON DATA IN TABLE 13A, APPEND 1.

Agency	Amount	Ill.	Ind.	Iowa	Mich.	Minn	Ohio	Wis.	Reg.
State and Private	137,719.38	85.0%	20.3%	11.5%	11.6%	2.2%	10.1%	8.0%	10.3
Federal Regular	330,309.21	1.2	5.2	7.5	5.1	12.3	4.7	4.4	7.1
WPA CWA WSA	2,210,371.68	51.7	90.6	65.9	58.0	51.8	56.2	46.0	57.3
CCC, NYA	1,050,045.24	11.1	15.3	8.3	22.1	15.2	10.2	26.2	7.1
FSA	225,559.57	0.7	9.5	7.1	2.4	7.3	3.0	3.5	2.2
Total	3,954,045.08	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

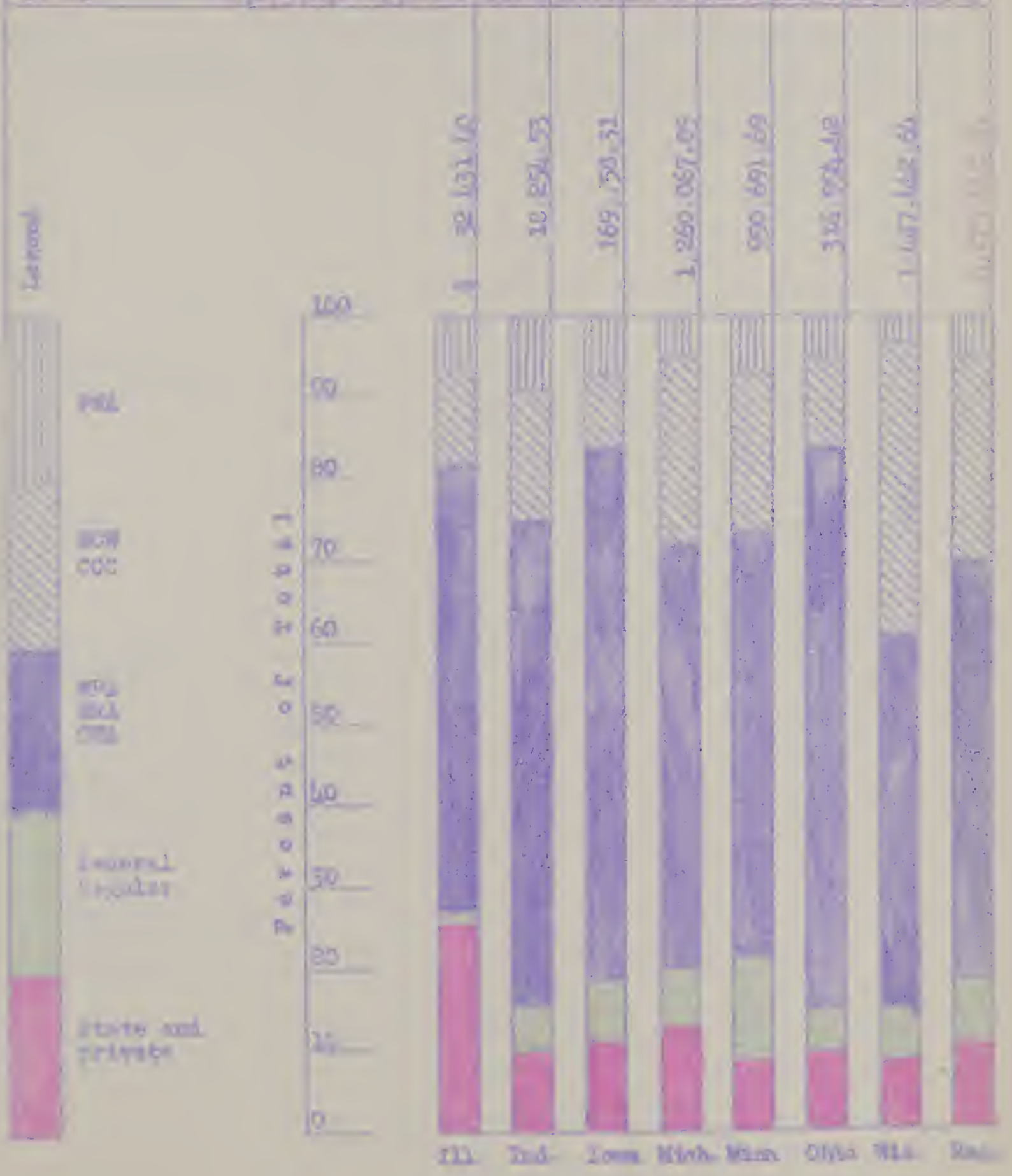


TABLE 15

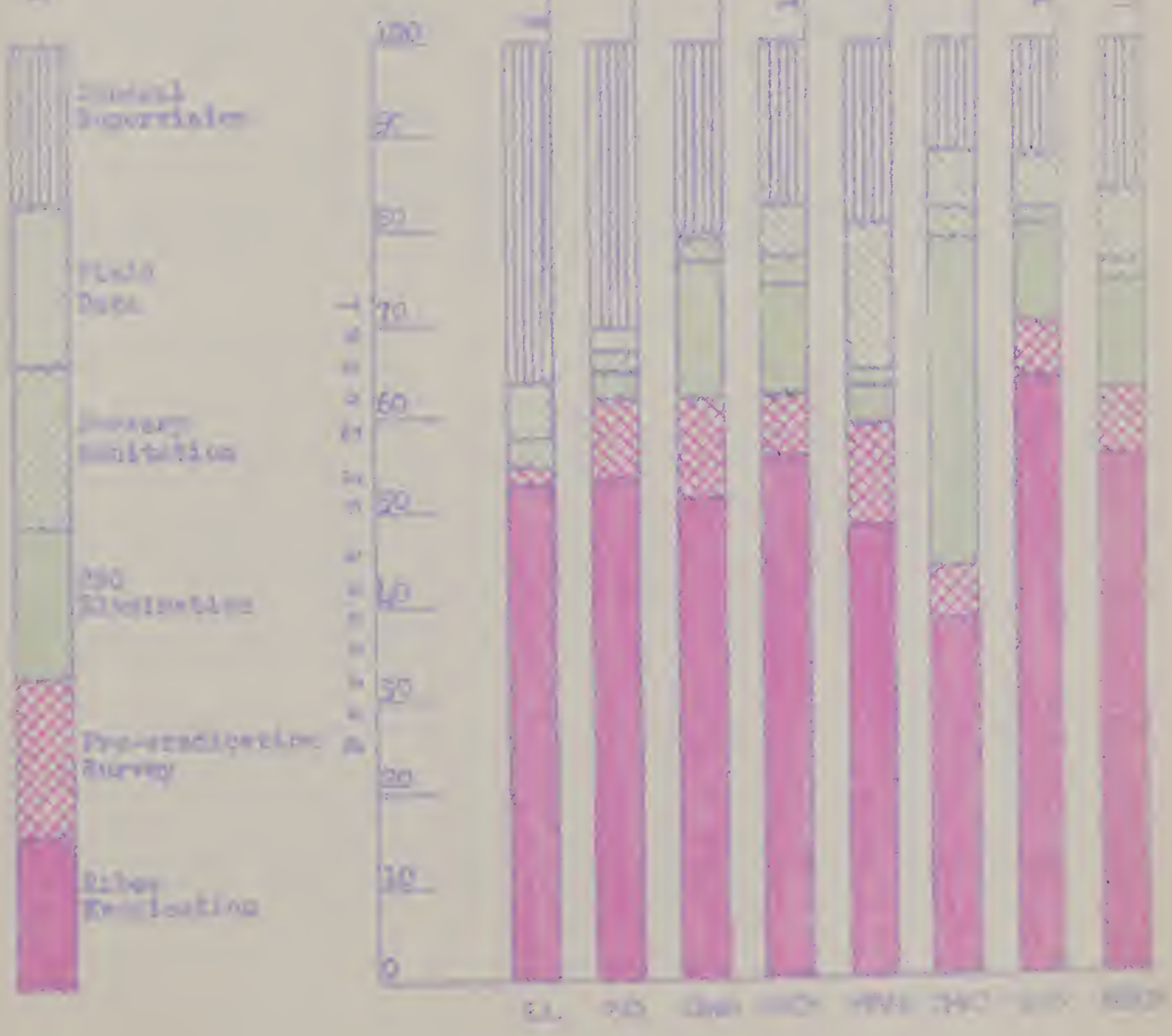
PROJECT OF EXPENDITURES IN EACH STATE, INDICATED BY MILLIONTHS, TRANSFERRED TO EACH ACTIVITY, FISCAL YEARS 1968 TO 1995, INCLUSIVE

BASED ON MONTHS TABLE 14, SHEET 2.

Activity	Amount	Pct.	Ind.	Iowa	Minn.	Miss.	Ohio	Wis.	Reg.
Soil Conservation	676,996	1836.1	50.2	20,750	37,439	19,263	31,961	32,055	13,284
Field Data	126,931	29 5.6	2.5	0.3	5.7	15.2	6.2	3.3	1.2
Pur. Participation	97,503	56 3.1	1.6	2.2	2.7	1.3	3.3	1.5	0.0
RAD Elimination	494,992	81 -	3.6	14.9	12.6	1.2	25.2	10.6	13.1
Proposed, Survey	305,585	95 2.1	8.9	10.8	6.0	11.1	5.4	3.8	2.1
Other Prob.	2388,060	98 58.9	53.9	51.8	36.5	40.5	33.6	45.1	72.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

a. Including Bunker Trading $3,696.86 in Alabama $3,795.86 in Tennessee, $7,487.22 total.

b. Including $20,047.90, value of cultivated Sales Merchant in Region.



as a result of this expenditure. It does also the human factor play its part on local control. This is in contrast with the percent expenditure for local control in this during the calendar year 1939, as shown in Part II.

A percentage comparison of activities for the region as a whole, exclusive of Milwaukee, between 1939 expenditures only and total expenditures 1918 to 1939, inclusive, is shown below:

Percentage Comparison of Activities Between Expenditures
1939 only and 1918 to 1939 Inclusive, North Central Region,
Exclusive of Milwaukee

Activity	1939 Only		1918 to 1939	
	Amount	Percent of Total	Amount	Percent of Total
General supervision	$ 22,623.03	20.4	$ 273,190.39	9.3
Field Data	16,885.07	6.1	258,911.20	7.9
Nursery Sanitation	2,625.46	0.8	87,802.93	2.0
Old Eradication	66,815.31	12.2	486,242.71	13.4
Pre-eradication				
Survey	15,686.17	5.6	305,002.03	7.1
Sites Eradication	267,639.91	53.1	2,388,060.90	68.6
Total	401,277.01	100.0	3,599,210.16	100.0

In 1939 a higher proportion of funds was spent on general supervision, eradication, and multi-rated plant current eradication than for the period 1918 to 1939. The proportion spent for pre-eradication survey, nursery sanitation and field data are less in 1939 than for the entire period.

Automobile Operation Costs

For the first time in this region an effort was made to make a summary of operating costs of government-owned automobiles. The quarterly and monthly automobile costs for each automobile were the source of information. For ease in figuring, as well as to cover a longer period, costs for the 18 months' period from July 1, 1938 to December 31, 1939 were used in Table 58 the summary of costs of operation of government cars, by states and divided into passenger cars and trucks, is given according to the main headings as shown. The average cost per mile, excluding depreciation, for all 78 cars operated during the period was $0.0172

Excluding depreciation, oils and storage, the average cost per mile of operation was $0.0167. It will be noted that the 22 passenger cars averaged exactly 17 miles per gallon of gas as compared with 13.97 miles per gallon of gas for the 56 trucks. This increased mileage on the part of passenger cars was reflected in the cost per mile where it will be noted that, excluding tolls, storage and depreciation, the average cost per mile of passenger cars was $0.0166 as compared with $0.0171 for trucks.

In order to determine differential between years and models, Tables 11 and 12 were then prepared for passenger cars and trucks, respectively, showing all model model miles, average and depreciation. The cost of miles and average, of course, here nothing to do with the particular year and model of automobile. Ready to compare costs between different years and makes of cars, miles, average and depreciation have been applied.

Material in Tables 11 and 12 is also presented in Chart 12. Cost cents per 100 miles of operation is shown, divided into component parts and listed in ascending order of costs. With the exception of the Dodge Sportsman, which is an even larger and heavier car was considered next year is also observed, it will be noted that in general the cost of gasoline and oil was not the chief factor in influencing increased costs of operation. The major factor was the repair bill.

It would be expected, in general, the greater the age of the car the more expensive it was to operate. The Chevrolet Standard Coach, 1931 nevertheless approximately the average of all the cars in this region. Operating charges that day was not also was a Chevrolet Coach, 1931, a Ford Coupe, 1931, and an Essex Coupe, 1930. Operating costs comparatively show this car, all of the cars were under all the exception two Chevrolet Coach trucks, 1927.

In particular make studies can be made very general support to results of operation. The most economical car was the Chevrolet Standard Coach, 1931, operating at a cost of 3.6¢ per 100 miles. It had only operated approximately 10,000 miles and practically in repair and yet been intensely used in time costs had been charged. One factor making for heavy depreciation of this particular car is the fact that in Ohio where gasoline is the cheapest of all the states in this region.

Operating Costs

The information furnished in the section which is intended to be in complete agreement with figures given in our 1930 Annual Report. Data for purposes for information furnished in these tables will differ slightly from tables issued in January 1930. The differences mainly concern average figures on the local control tables as reported from the states of Tennessee and Ohio. In these states payments records were revised on during the winter and certain errors were found and corrected. It is expected that cumulative figures based on the earlier tables to be, and at least will now stand as they are given.

CHEROKEE TABLE 11

SUMMARY OF 1939 FARM ADJUSTMENT

State	Initial grubbing and sprocking work: Acres worked	Initial grubbing and sprocking work: Number trees destroyed: Wild	Initial grubbing and sprocking work: Number trees destroyed: Cult.	Initial grubbing and sprocking work: Number 8-hour man-days	Accomplishment work: Average worked	Accomplishment work: Number trees destroyed: Wild	Accomplishment work: Number trees destroyed: Cult.	Accomplishment work: Number 8-hour man-days	Total: Average worked	Total: Number trees destroyed: Wild	Total: Number trees destroyed: Cult.	Total: Number 8-hour man-days	Percent initial work of total worked
Alabama	1,147	117,934	-	417	4	36,765	-	116	1,167	154,699	-	536	7.0
Georgia	12,849	76,339	186	355	185	2,265	30	8	17,534	78,566	186	363	26.4
Iowa	16,987	150,551	1,799	1,514	770	68,815	-	685	17,757	219,366	1,799	2,199	1.9
Kentucky	83,660	3,304,685	6,058	11,779	12,759	462,771	351	3,964	96,419	3,766,956	6,585	20,793	4.6
Louisiana	21,739	4,784,096	207	11,324	20,532	1,489,679	4	5,631	44,970	6,273,746	211	17,955	1.0
Ohio	74,351	396,151	4,268	10,370	14,972	146,449	157	4,409	89,523	1,132,400	4,395	12,379	27.1
Tennessee	74,360	5,720,618	6,605	23,842	24,855	417,699	-	4,895	99,655	6,138,017	6,605	28,737	5.5
Total	305,313	14,550,409	19,121	59,601	73,142	2,624,451	542	27,603	378,455	17,175,860	19,663	87,204	5.2

1/ Not in first annual application. Acreage previously reported.

2/ Number 8-hour man-days = $\frac{\text{hours worked per day} \times \text{number cds.}}{8}$

3/ Percentage of total which plan control acreage in State that was worked during 1939.

APPENDIX TABLE #1
SUMMARY OF LOCAL FARM ORGANIZATION

Table #1
Page #2

County	Sites per Acre: Initial Area	Sites per Acre: Reservation	Employment per Acre: Initial Area	Employment per Acre: Reservation	Number of Owners: C.C.C.	Number of Owners: N.F.A.	Number of Owners: Part	Number of Owners: Total	Number of Employees: Laborers: C.C.C.	Number of Employees: Laborers: N.F.A.	Number of Employees: Laborers: Reg. Coop.	Number of Employees: Laborers: Total	Number of Employees: All Supervision	Number of Employees: Total Employees
[illegible]	120.9	-	0.39	-	-	-	-	-	16	-	16	1	17	
[illegible]	6.0	4/5	0.03	0.02	2	-	-	2	10	13	-	23	1	24
[illegible]	9.0	155.3	0.09	1.10	-	-	-	-	-	21	-	21	3	24
[illegible]	39.6	30.3	0.23	0.24	19	-	-	19	57	274	-	653	43	696
[illegible]	260.5	75.3	0.75	0.53	16	2	-	30	337	334	-	682	34	650
[illegible]	13.4	9.8	0.14	0.17	7	-	-	7	123	574	-	697	10	307
[illegible]	71.0	17.8	0.30	0.20	19	-	-	19	250	510	32	736	26	784

*Since the maximum number of persons on the pay roll at the end of the season.
Total number persons employed is not derived because the large turnover in
N.F.A. camps would result in an exaggerated figure.

Tables #2
Sheet #1

TABLE #2
SUMMARY OF 1939 WORK RELIEF AND RELIEF PROGRAMS
(Including all work - Initial and Supplemental)

State	Total Acreage Worked (Initial and Supplemental)	Regular and Cooperative — W.P.A. and S.S.A. — Acreage Worked	No. Silos Destroyed: Wild	No. Silos Destroyed: Tame	Number 8-hour Man-days	Acreage Worked	Est. No. Mice Destroyed: Wild	Est. No. Mice Destroyed: Tame	Number 8-hour Man-days
Illinois	1,161	96	6,000	—	17	1,073	120,300	—	339
Indiana	13,334	3,351	7	0	a	9,096	70,925	465	940
Iowa	27,657	Work done obtained under W.P.A.			475	27,357	349,364	1,799	2,964
Michigan	56,715	1,921	—	—	b	50,796	2,899,963	6,550	15,927
Minnesota	48,090	—	—	—	a	39,697	5,593,172	211	14,193
Ohio	9,883	—	—	—	—	15,860	2,058,477	4,596	11,976
Wisconsin	18,695	11,129	310,698	—	795	37,621	1,841,329	1,681	11,397

a. Covered in Iowa distribution.
b. Areas found to be about five when covered by re-examination survey in Central Lakes.

CHECKS PAID #2
Subject of '999 Alien Exploration in Planets
(Including all work - Initial and Rehabilitation)

TABLE #2
CHART #2

State	S.C.A. and D.C. Workers	No. Miles Destroyed Rail	Cable	Number 8-Hour Man-days	Persons Rescued	Total No. Miles Destroyed Rail	Cable	Number 8-Hour Man-days
Illinois	-	-	-	-	2,167	154,900	-	226
Indiana	985	2,030	15	21	13,334	79,582	144	564
Iowa	-	-	-	-	27,351	249,364	1,799	3,139
Michigan	27,106	367,035	55	6,066	96,123	5,766,496	8,683	20,745
Minnesota	9,397	350,294	-	3,172	49,070	6,273,766	111	17,955
Ohio	9,978	169,989	5	1,705	89,423	1,116,100	4,395	12,979
Wisconsin	28,702	2,135,481	4,724	13,930	70,695	5,138,017	6,605	25,737
(etc.)	(etc.)	(etc.)	(etc.)	(etc.)	(etc.)	(etc.)	(etc.)	(etc.)

CHESTNUT BLIGHT
Summary of all types SURVEY 1935-1939 (Inclusive)

Table #14
Sheet #1

State	Total Acreage White Pine	Acreage Wh. Pine North Protection	Compare Control Area (Wh. Pine and Protection Zones)	Acreage Inspected Initially Worked	Net Acreage Worked in Control Area	Initial Eradication Work Number Mines Destroyed Wild	Cull.	Number 8-Hour Man-Days
Illinois	4,000	3,004	15,261	11,133	11,133	1,452,150	388	4,004
Indiana	5,000	1,750	57,327	34,690	34,690	255,380	51	2,454
Iowa	6,000	5,500	878,000	317,877	317,877	2,845,822	37,691	20,843
Michigan	1,000,000	555,691	1,000,00	1,039,310	1,039,154	59,436,663	36,409	847,814
Minnesota	857,000	280,910	710,154	362,062	362,062	51,397,655	14,662	127,368
Ohio	15,000	14,010	275,877	137,184	137,184	2,823,434	4,388	35,689
Wisconsin	1,300,000	363,963	1,368,100	853,001	848,288	75,388,395	23,357	312,531
Total	3,237,000	1,224,828	11,290	2,775,255	2,770,478	193,749,101	117,349	754,899

Area	Establishments: Average Employees	Establishments: Payroll ($1,000)	Establishments: Payroll (Cents)	Establishments: Average Hours per Week	Establishments: Payroll per Man-Hour	Total: Net Tonnage Worked in Central Areas	Total: Number Hired: Employees	Total: Payroll ($1,000)	Total: Payroll (Cents)	Total: Average Hours per Week	Total: Average Payroll per Man-Hour	Percent Unfilled Orders	For Area: White: Male, Net Production	For Area: White: Female, Net Production	For Area: Non-White: Male, Net Production	For Area: Non-White: Female, Net Production
Illinois	5,805	434,763	48	1,885	14,958	1,886,341	105	5,849	73.5	130.5	114.3	0.56	0.49			
Indiana	2,438	23,083	91	475	57,128	279,103	543	3,161	95.4	4.7	5.5	0.05	0.12			
Iowa	7,810	104,003	153	775	323,687	2,890,625	37,534	21,616	35.4	9.1	17.9	0.07	0.13			
Kansas	96,597	3,741,775	4,084	21,753	1,135,753	63,175,438	58,503	369,997	57.7	37.2	38.8	0.24	0.23			
Minnesota	32,143	4,040,471	535	17,356	411,203	35,396,127	15,067	114,889	51.0	142.0	76.7	0.35	0.36			
Mis	21,600	475,957	127	2,705	158,584	2,699,271	4,395	35,335	49.7	16.8	22.2	0.19	0.41			
Nebraska	84,856	2,692,252	164	20,822	345,084	78,198,447	23,525	333,393	68.4	84.4	36.3	0.37	0.25			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

* Percentage of total waste plus control lost in mills high has been burned initially.

State	Total Persons Employed (Initial and Recreation-ation)	Regular and Cooperative Number Reporting			Number of Man-days	T.V.A. and R.E.A. Number Employed Average		Number Employed		Number of Man-days
			Number Hired							
			Total	Quit						
Alabama	14,799	4,085	982,805	-	144	2,751	1,838,768	106	3,647	
[illegible]	57,165	13,253	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Iowa	323,687	200	22,300	-	984	251,310	9 315,517	26,086	15,995	
Kentucky	1,135,317	64,351	2,795,985	43	11,997	590,774	35,989,594	58,592	156,597	
Mississippi	144,895	3,17[illegible]	578,780	2	2,548	38,681	90 129,132	13,756	72,470	
Ohio	359,941	380	3,489	-	50	[illegible]	1,395,516	4,392	24,777	
Tennessee	237,857	77,[illegible]	9,171,885	197	17,489	479,81[illegible]	36,369,040	17,596	137,797	
Total	2,046,48[illegible]	163,[illegible]	13,582,[illegible]	186	31,701	1,[illegible]	139,[illegible]	201,[illegible]	405,[illegible]	

a/ Includes 175 man-days of part-time labor, accomplishments of which are reported under T.V.A.

QUESTIONNAIRE TABLE NO.A

SUMMARY OF ALL WORKS CONSTRUCTED BY PROGRAMME AGENCIES - 1/10 INTERVIEWS

(Initial and Reconstruction)

State	E.E.R. and C.C.C.					T.V.A. or T.V.A.					Other Emergency Programs (W.P.A. - S.C.W. - F.S.A.)			
	Persons Worked	Number Miles Trees Destroyed		Number Miles Timber Saleable	Man-days Worked	Number Miles Trees Destroyed		Number Miles Timber Saleable	Man-days Worked	Persons Employed	Number Miles Trees Destroyed		Number Miles Timber Saleable	Man-days Worked
		Mile	Cubic	Man-days		Mile	Cubic				Mile	Cubic		
Illinois	1,888	385,738	-	1,776	810	-	-	-		10,849	1,624,106	126		9,593
Indiana	10,608	77,089	72	1,854	2,713	5,623	-	89		43,795	278,005	535		3,155
Iowa	3,487	350,245	-	3,946	69,715	892,564	11,814	1,096		383,487	2,989,392	37,834		25,187
Kansas	516,958	24,187,571	178	180,178	4,496	403,128	-	907		1,971,960	60,330,513	58,160		257,570
Kentucky	130,093	19,190,847	58	99,666	12,355	5,041,308	1,934	10,418		405,067	54,659,547	15,039		114,990
Maine	32,517	696,368	5	15,089	11,392	152,856	-	1,691		158,194	2,696,116	4,395		35,279
Maryland	378,300	35,567,342	5,320	160,778	4,698	1,051,774	-	2,045		860,523	73,788,964	23,418		317,494
Total	1,075,851	88,201,190	5,633	463,287	126,200	7,781,260	13,748	16,240		4,015,811	196,895,850	180,097		1,003,043

Cultivated Direct Receipts Conditions						Property Evaluation					Property Taxes	
Tenants Turnover Rate	Owners Investment	Tenants Occupancy	Owners Turnover	Tax Exemption	Tax Rate Per $	Tax Rate	Est. Mkt. Value Improvements	Est. Mkt. Value Land	Assessed Value	Property Taxes Levied	Delinquent Taxes
-	-	-	-	3	$0.700	1.000	$ 2,000,000	77	$ 1,400	18
-	-	-	-	3	$7.100	1.000	[illegible]	90	$ 19,000	18
[illegible]	70	[illegible]	50	3	[illegible]	20	[illegible]	-	3	$ 19,150	1/4
[illegible]	90	[illegible]	[illegible]	3	$ [illegible]	[illegible]	[illegible]	1	11	[illegible]	6%
[illegible]	30	12%	60%	3	$ [illegible]	[illegible]	[illegible]	4%	200	$ [illegible]	[illegible]
[illegible]	80	[illegible]	50	3	$ [illegible]	[illegible]	3	1	4	$ 3,500	3%
[illegible]	5%	75%	[illegible]	3	$ [illegible]	[illegible]	[illegible]	-	37	$ [illegible]	6%

1/ Percentage changed to Lower Brackets
2/ Includes $2,000 worth personalty [illegible] assessed value 1/2 Personalty.

[illegible] TABLE [illegible]
SUMMARY OF ALL CROPS CONTROL DATA FOR 1957

[illegible] 56
COUNTY [illegible]

State	Treatment initiated 1957: No. farms Complete	No. farms Started	No. acres Treated	No. Growers Reached	Number 5-Year Man-days	Average Cotton	Increase 5-Year Man-days	Average Combed	Plus: Number Man-days	Acres Checked	Crop ** Number 5-Year Man-days
Alabama	-	-	-				-	2,160	*	-	-
California	-	-	-	-	-	-	-	-	-	2,160	20
Iowa	-	-	-	-	-	-	-	-	-	2,693	43
Michigan	79,573	2,666	-	3,764	548	-	-	12,130	10	80,630	385
Wisconsin	3,609	1,216	329	2,165	216	-	-	4,048	*	13,165	241
Ohio	-	-	-	-	-	-	-	-	-	38,730	97
Wisconsin	-	-	-	-	-	-	-	-	-	17,197	*
Total	83,182	3,882	329	5,929	764	-	-	18,338	10	154,575	786

A. Changed to Agent Activities
B. Changed to Tube Application

CONTROL TABLE #5A

SUMMARY OF ALL OTHER CONTROL WORK, 1916-1939 (INCLUSIVE)

TABLE #5A
CONT'D #1

State	Cultivated Black Current Eradication						Nursery Sanitation					
	Number Inspections Made	Number Localities Where Found	No. Black Currants Destroyed	Number 8-Hour Man-days	No. of Nurseries Eradication Has Been Maintained	No. of Nurseries Eradication Abandoned	No. Acres Worked Nurseries Maintaining Sense	No. Acres Worked More, Which Abandoned Zones	No. Acres Worked Total Acreage	Number Pines Destroyed Wild	Number Pines Destroyed Cult'd	Number 8-Hour Man-days
Colorado	48,067	330	564	65	0	0	2,520	0	2,520	42,094	1,529	275
Indiana	52,000	214	-	160	4	2	2,100	1,650	3,750	43,864	55	57
Iowa	253,999	1,160	5,974	4,963	5	2	2,850	930	3,192	69,101	1,290	680
Michigan	764,091	16,969	137,632	31,184	6	3	1,970	1,790	3,760	1,072,118	164	15,444
Minnesota	156,290	3,044	82,859	9,995	11	6	4,384	1,350	5,734	1,154,685	3,635	4,363
Ohio	1,530,703	4,482	70,308	22,134	4	9	1,824	4,507	6,331	93,996	5,822	1,675
Wisconsin	825,305	6,449	36,448	20,028	7	7	2,269	2,230	4,499	797,797	1,393	7,659
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

CANCELED TABLE #5A
SUMMARY OF ALL WHITE PINE CONTROL WORK, 1918-1933 (INCLUSIVE)

TABLE #5A
SHEET #2

State	Preventive Work: Number Acres Blipped White Pine and Protection Zones	Number 2-hour Man-days	Treatment Infected White Pine: Number Trees Examined	Number Trees Treated	Number Trees Removed	Number Cankers Removed	Number 2-hour Man-days
Illinois	11,311	114	-	-	-	-	-
Indiana	41,242	221	-	-	-	-	-
Iowa	575,192	4,386	-	-	-	-	-
Michigan	1,206,481	15,563	199,575	17,330	4	30,572	1,028
Minnesota	62,238	29,908	219,152	2,360	1,155	20,540	696
Ohio	165,980	3,852	300	13	7	16	-
Wisconsin	1,223,195	15,957	-	-	-	-	-
TOTAL	3,284,719	74,124	419,027	19,703	1,166	51,127	1,724

[illegible]

[illegible]

State	Total	Trade (Gen. All Comm. Trade)	Grand Total	Receipts (Current Year)					
				P.C.A.	C.D.A.	S.T.C.	E.T.A.	S.T.(A)	Total
Alabama	[illegible]	[illegible]	[illegible]	-	[illegible]	[illegible]	-	-	[illegible]
California	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]
Iowa	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]
Minnesota	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]
Wisconsin	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]	[illegible]

TABLE [illegible]
[illegible]

[illegible]
[illegible]

State	Expenditures by Activities (Federal & State)						
	Supervision, Training, State and District Leaders	Mines Eradication	Cultivated Plant Crop Eradication	Nursery Sanitation	Grader Elimination	Pest Eradication Survey	All Other (Dredging, Field Data & Misc.)
Illinois	$2,526.19	$3,356.79	-	$335.60	-	-	-
Indiana	956.20	1,660.01	-	144.10	-	187.70	-
Iowa	4,095.58	8,547.15	83,891.84	75.00	-	1,653.89	-
Michigan	35,516.06	66,544.97	25,504.63 a	371.02	4809.47	2,495.69	4,472.04
Minnesota	35,806.17	57,050.34	2,054.94 b	171.70	579.80	6,554.82	4,868.69
Ohio	6,547.26	10,546.35	5,352.31 c	15.30	-	2,336.85	3,280.95
Wisconsin	23,715.23	34,559.35	82,034.50 d	720.54	-	1,287.93	5,066.12
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

a. Includes $1,743.75 as value of cultivated vines which were destroyed.
b. Includes 95.25 as value of cultivated vines which were destroyed.
c. Includes 1,150.30 as value of cultivated vines which were destroyed.
d. Includes 6,540.00 as value of cultivated vines which were destroyed.

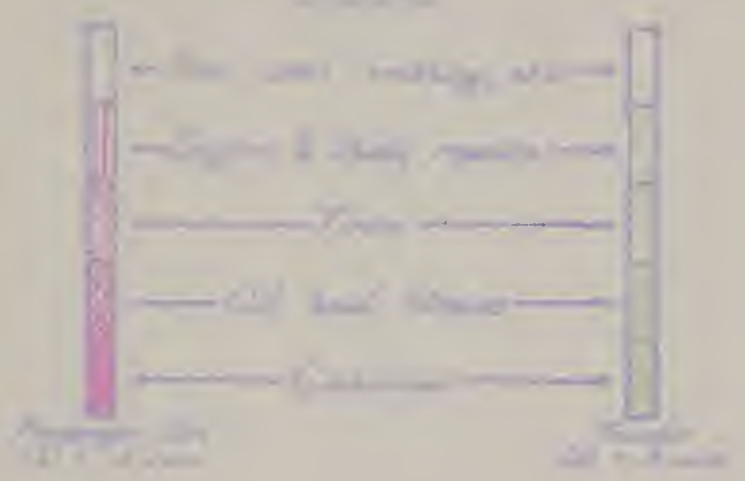
[illegible]

[illegible]	Control Area Inventoried Under Zones (Acres)	Net Control Area Initially Protected (Acres)	Control Areas Remaining Subsequent to Initial Protection (Acres)	No. 8-Hour Man-Days (Man-Days)	Fires Detected (Fires & Multi-Fires)	Cumulative Control Area Receiving Initial Protection (Acres)	Estimated Protected Area Lost on Relinquished Units (Acres)
[illegible]	1: 264	21,773	1,095	5,450	1,087,819	4,120	-
[illegible]	57,387	54,490	2,698	3,151	270,666	2,687	14,665
[illegible]	938,844	517,677	51,930	21,517	2,950,159	580,323	[illegible]
[illegible]	1,900,980	1,039,154	94,395	846,591	5,254,941	760,242	150,000
[illegible]	730,134	352,062	52,143	304,884	59,513,176	548,098	51,547
[illegible]	275,879	137,184	81,500	33,731	2,705,666	326,695	33,830
[illegible]	1,300,400	844,283	34,956	333,553	19,113,978	514,374	16,664
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Relinquishment - Any portion of a control area that has formally attributed (protection or fires) or natural treatment (cutting out of fires) acquired a status whereby the intensity of wildfire measures otherwise historically used to control fire in wildfire period, such that no further work (except perhaps monitoring) is expected during the current rotation cycle. This status continues for a varying number of years until, after a major protracted season, a renewal to-ward the growth of fires again endangers the plan, and these areas then revert to a control status.

Chart 16

Total Tax and Value of Contracts, Exclusive of Duty, Storage and Depreciation, of Government Owned Lands Operated in Eight Central Region, July 1 1938 to December 31 1939. Based on Table 36.



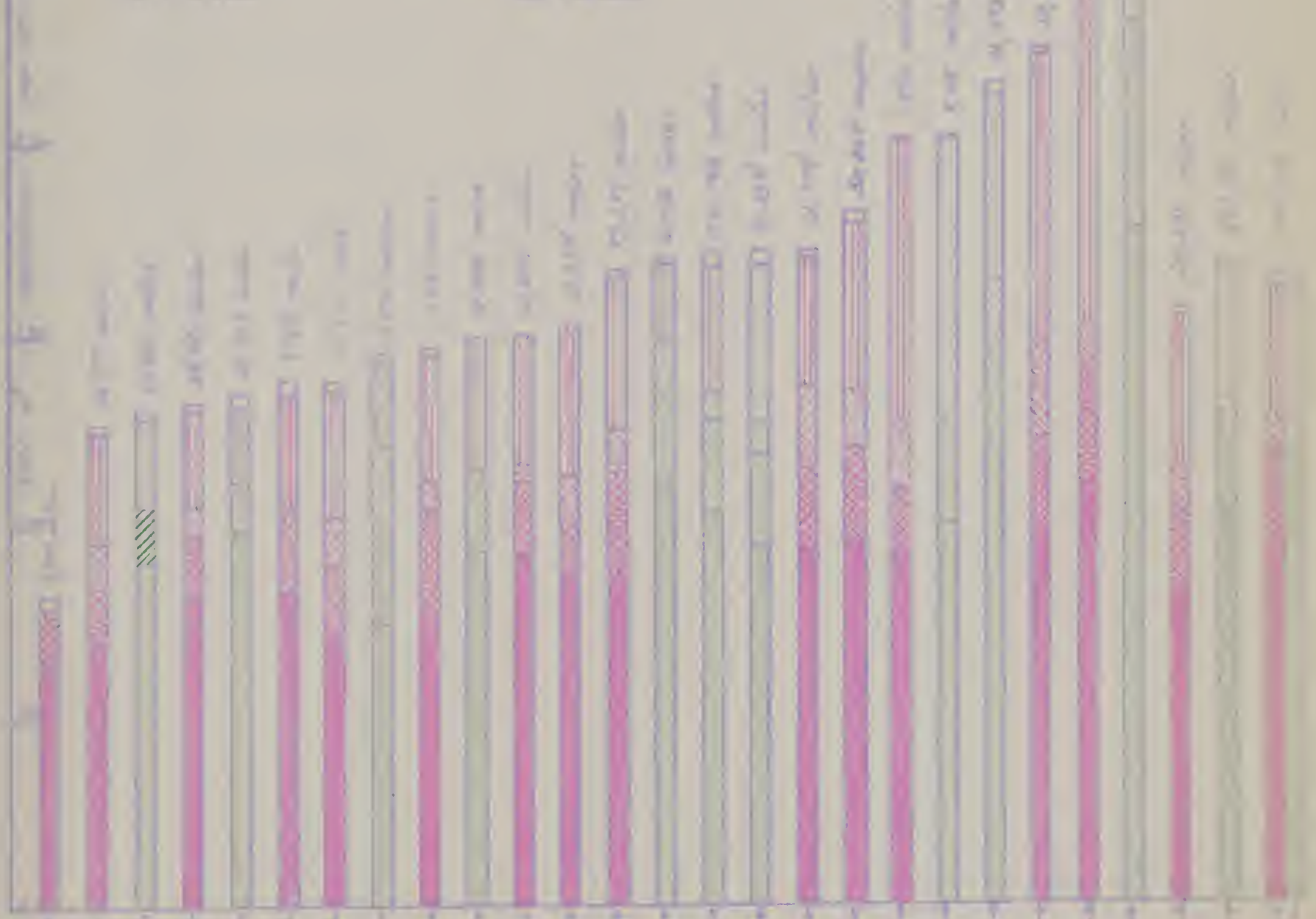


Table 1. - Approximate Number Man-months Employment on Blister Rust Control Activities, Cutover Office, Milwaukee, Wisconsin, 1940

Program	Position	Approximate Number Men Employed												Approx. Per Man Months
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Service	Regional Leader	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	12.0
Funds	Asstr. Regional Leader	1.0	1.0	1.0	-	-	0.5	1.0	1.0	1.0	1.0	1.0	1.0	9.5
	General Specialist	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-	-	-	-	-	7.0
	Clerk (Accounts)	1.0	1.0	1.0	-	-	0.5	-	-	-	-	1.0	1.0	5.5
P. W. A. Funds	Project Supervisor	-	-	-	-	-	-	-	1.0	1.0	1.0	1.0	1.0	5.0
C.C.C.	Supervisor	1.0	1.0	1.0	-	-	-	-	-	-	-	-	-	3.0
W.P.A. (1939)	Supervisor	1.0	1.0	1.0	-	-	-	-	-	-	-	-	-	3.0
	Clerks (Accounts)	1.0	1.0	1.0	-	-	-	-	-	-	-	-	-	3.0
W.P.A. (1940)	Asst. Regional Leader	-	-	-	1.0	1.0	0.5	-	-	-	-	-	-	2.5
	Clerks (Accounts)	3.0	2.0	2.0	1.0	1.0	3.0	-	-	-	-	-	-	13.0
	Clerks (Relief) Unclass.	-	-	-	-	0.5	1.0	-	-	-	-	-	-	1.5
W.P.A. (1940) 2000	Clerks (Accounts)													
W.P.A. 2000	Project Supervisor	-	-	-	-	-	-	1.0	1.0	1.0	1.0	1.0	1.0	7.0
	Clerks (Accounts)	-	-	-	-	-	-	1.0	1.0	1.0	-	-	-	3.0
	Clerks (Relief) Unclass.	-	-	-	-	-	-	0.5	1.0	-	0.5	1.0	1.5	4.5
	Typists (Clerical) Stenographic	-	-	-	-	-	-	-	-	1.0	1.0	2.0	2.0	6.0
NYA	Regional Leader	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	12.0
Funds	Asst. Regional Leader	1.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0	1.0	15.0
		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	12.0
		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	12.0
	Clerks (Accounts)	1.0	1.0	1.0	1.0	1.0	1.0							
	Clerks (Relief)		1.0				1.0			1.0				3.0

| Program | Position | | |

Table 5 - Compensable Cases Involving T.P.C. Workers Reported to the Milwaukee Office, 1971

State	Head Injury	Chest Injury	Eye Injury	Ivy and Other Plant Infection	Laceration	Cuts Sprains Burns & Bruises	Leg Cases	Total	Number per 1000 Employees
Illinois	-	-	-	-	-	-	-	-	-
Indiana	-	-	-	-	-	-	-	-	-
Iowa	-	1	1	3		1		5	22.7%
[illegible]		1	2	13	-	1	3	20	11.4%
[illegible]	1	3	1	1	1	1	-	28	11.9%
[illegible]	-	-	-	-	-	-	-	-	-
[illegible]	-	-	1	3	-	1	-	10	6.4%
Total	1	5	5	20	1	4	3	63	12

Table 3a. - Incapacitating Cases Investigated M.T.A. Workmen reported to Mr Ullswater's Office, 1939.

Month Occurring	Struck by Lorry	Struck by Car	Run down by Other Vehicle	Fell off Moving Vehicle	Fall from Height	Injured by Falling Object	Other Causes	Total	Number per 1000 Workmen
January	1	-	-	-	-	-	1	2	0.3%
February	1	-	-	-	-	3	-	4	0.5%
March	-	-	1	1	-	-	4	6	0.8%
April	-	-	-	-	-	-	-	-	-
May	-	-	1	2	-	1	1	5	0.6%
June	1	1	1	1	-	2	-	6	0.8%
July	1	-	1	1	-	1	-	4	0.5%
August	-	1	-	4	1	1	-	7	0.9%
September	-	-	1	1	-	-	1	3	0.4%
October	-	1	1	1	-	-	1	4	0.5%
November	-	-	-	-	-	-	-	-	-
December	-	-	-	-	-	1	-	1	0.1%

Table 7. - Pre-cruise Surveys Performed in Lake States Region, 1929, classified by Ownership and State

Ownership Class	Total Acres White Pine & N.F. Type	Acres W.P. and N.P.F.S. Types Under Protection: Active White Pine Type 1st Priority	2nd Priority	Planted White Pine	Approved White Pine Fl. Site	Total	Acres Re Work	Days of Service: Inspection	Control
Illinois									
State	23	-	-	1	22	23	23	5.0	*
Private	75	38	-	11	26	37	636	7.2	*
Total, Illinois	98								
Indiana									
State	246	-	-	36	-	36	2,163	5.5	436.75
Private	593	33	-	66	130	196	10,480	17.0	183.06
Total, Indiana									
Iowa									
Private									
Michigan									
Federal	4,868	1,907	168	776	2,547	4,498	15,275	47.0	264.34
State	4,895	574	1,409	2,116	-	4,099	10,502	33.0	171.00
County and City	98	68	30	-	-	98	384	2.0	30.50
Private	9,850	3,564	3,818	130	142	4,090	21,716	201.0	2,012.75
Total, Michigan									
Minnesota									
Federal	23,223	5,909	6,107	2,772	2,582	16,998	57,716	81.5	2,436.50
State	11,778	2,949	1,584	734	1,048	6,315	17,581	442.0	1,287.00
County and City	5	5	-	-	-	5	74	1.0	5.00
Private	1,126	883	287	-	-	1,170	2,468	43.0	1,450.00
Total, Minnesota									
Ohio									
Federal	97	-	-	78	-	78	2,458	78.0	444.00
State	15	-	-	15	-	15	1,170	10.0	120.00
County and City	30	-	-	21	-	21	1,332	11.7	54.00
Private	1,168	-	-	1,111	101	1,212	23,749	87.0	1,830.00
Total, Ohio									
Wisconsin									
Federal	1,000	1,000	1,000	1,000	1,000	4,000	16,000	1,000.0	1,000.00
State	1,000	1,000	1,000	1,000	1,000	4,000	16,000	1,000.0	1,000.00
County and City	1,000	1,000	1,000	1,000	1,000	4,000	16,000	1,000.0	1,000.00
Private	1,000	1,000	1,000	1,000	1,000	4,000	16,000	1,000.0	1,000.00
Total, Wisconsin									
Total									
Federal	36,163	7,877	7,021	4,639	4,611	24,148	91,948	1,613.0	3,600.34
State	17,488	3,523	2,993	2,866	2,070	11,452	34,668	492.0	1,457.00
County and City	1,233	73	30	21	1	125	1,790	13.7	89.50
Private	12,813	4,480	4,105	1,241	1,243	11,069	58,997	1,107.0	5,292.75
Total, Lake States									

* - Covered by basic activities.

Table 14. - Recovery in Statistics, 1933.

Agency	Number of Larvae	Total Larvae Examined		Larvae North Stradbroke		Adults Bribie Island North Stradbroke		Numbers Dead	Total Lost
		Tube	Net	Tube	Net	Tube	Net		
Globe	101	[illegible]	22,255	1,490	7,491	1,484	11,915	25	1,915.20
S.P.A.	282	26,208	76,175	3,648	60,985	10,365	17,290	12	1,427.12
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 8. - Comparison of Recommended Annual Rate of Return and Financial Rate Plan and Approved Financial Plan, Three Control Areas
As Compared to TVA

Table 14. – Summary of water Water Flow Investigations Completed by Surface, Underground Water and Engineering Staff, Fiscal Year Ending 1970

State	Operating Firms	Total Annual Water Flow Used (Acre-Feet)	Total Annual Water Flow Consumed (Acre-Feet)	Water Flow Uses Investigated				Percent of Total Water Flow Investigated
				Irrigation	Power	Domestic	Other	
Colorado	Public	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Private & Utility	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Industrial	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Colorado	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Public	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Private & Utility	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Industrial	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Iowa	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Public	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Private & Utility	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Industrial	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Michigan	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Public	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Private & Utility	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Industrial	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

State	Commodity Class	Total Value of Farm Production	Value of Farm Products Sold	Government Payments	Value of Forest Products Sold	Value of Farm Products Consumed by Farm Households	Percent of Total Value of Farm Production Sold
Indiana	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Iowa	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Kansas	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Kentucky	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Maine	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 16 - Summary of Tile or Pipe Produced by Other Establishments
in Shelby Township and Operating
During Selected Months, 1938

State	County	Kind of Tile or Pipe	Number of Establishments	Value of Tile or Pipe Produced			Percent of Total Value Produced
				Sewer Pipe	Drain Tile	Total	
Alabama	Shelby	Sewer pipe	1	-	-	315	0.2
		Drain tile	1	-	115	115	0.1

Table No. - Cumulative Summary of Acres Now ... Facility Sites Purchased by Fiscal Years
... Ownership, Class and Acquisition ... Lake Wales ... 1957-1970

Basin	Ownership Class	Total Acres Within Flood Water Protection	Acres W. P. and Fla Sites Probability Regular and cooperative	F.P.L. only	F.L.W. and F.P.L.	F.P.S. F.P.L.U. F.S.L.	Percent Total Within Flood Protection
Kissimmee	U.S.F.S.	200,000	-	-	-	-	-
	State	24,100	-	-	-	-	-
	County & City	9,500	-	-	-	-	-
	Private	220,000	-	301	-	301	0.4
			-	-	-	-	-
Kissimmee	U.S.F.S.	30,000	-	-	-	-	-
	State	23,100	-	-	-	-	-
	County & City	335	-	-	-	-	-
	Private	58,312	-	112	-	112	0.2

Table 21, - Acreage of Control Area Artificially Changed of Slope, Covered by Preconstruction Surveys and Surface Types by Purpose, Classified - Urban, Rural, and U.S. Total (1964)

State	Federal Plan	Acreage in Control Area: Planned Pipeline Pipe	Other	Total	Acreage Disposal System: Total (Gross)	Disposal (Net)	Acreage Controlled by Pre-construction Drainage and Grading	Average Critical Slope/ of Slope for Drainage
Illinois	3,961	2,197	6,877	43,834	41,733	41,163	184	1.4%
Indiana	2,953	47,987	3,447	97,527	96,090	95,690	2,577	8%
Iowa	6,430	343,586	40,000	388,000	347,977	231,877	608,805	571.4%
Michigan	1,646,779	87,854	65,965	1,000,000	1,099,838	1,099,184	569,877	171,569
Minnesota	633,266	34,690	36,350	734,134	682,641	502,082	752,083	90,166
Ohio	20,809	255,470	-	276,995	137,394	137,394	89,696	103,000
Wisconsin	1,674,325	62,310	44,250	1,368,109	859,871	818,320	574,991	114.5%

Table [illegible] - [illegible] of [illegible] [illegible] [illegible] [illegible] of [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

Table 26. - Cumulative Summary of Initial Level Control Performed on National Forests in North Central Region, From Inception to December 31, 1939.

1 Agency Performing Work	2 Year Work Done	3 Gross Acres Miles Plan Prof. Active Flagged	4 Fl. Miles	5 Total	6 Acres Surveyed	7 Gross Miles Polled	8 No. Miles Polled	9 Labor Man-days Labor	10 Labor Expen.	11 Costs Labor	12 Super.	13 Other	14 Total
Total National Forests, North Central Region													
Bureau	1933												
Bureau	1932												
F.S.	1933	4,193	573	385 (4,578m)	5,529	15,745	1,084,300	4,390	639	5,761.84	5,383.84	847.45	11,993.13
Bureau	1933	200	4	-	204	810	109,229	310	19	338.98	293.00	-	631.98
F.S.	1934	13,708	3,498	1,746m	17,399	41,116	2,706,795	17,265	1,900	21,711.72	8,300.65	3,050.01	33,062.38
Bureau	1934	2,299	257	151	2,707	6,003	979,093	2,293	180	4,127.13	788.79	214.39	5,130.31
F.S.	1935	9,035	5,024	90	12,998	25,104	1,603,890	11,532	877	20,887.22	6,382.33	1,795.61	29,065.16
Bureau	1935	1,674	-	-	1,774	5,212	595,812	2,693	126	4,303.65	399.39	198.35	4,901.39
F.S.	1936	6,817	1,992	326	8,105	19,709	1,771,397	7,713	522	19,782.12	2,987.43	2,056.25	25,025.80
Bureau	1936	780	385	-	1,616	4,042	362,580	636	34	3,029.32	187.77	21.69	3,238.78
F.S.	1937	821	5,929	70	6,488	18,185	461,822	5,796	482	13,018.55	2,736.38	1,916.31	17,671.24
Bureau	1937	180	3,671	126	4,667	31,339	284,186	1,478	74	1,545.79	462.78	35.07	2,043.64
F.S.	1938	1,474	4,161	185 (10,045m)	10,045	34,782	1,068,390	7,678	375	14,993.33	5,316.44	1,725.13	22,034.90
Bureau	1938	6,198	4,729	133	7,854	26,786	279,769	1,485	138	2,418.09	618.87	284.73	3,321.69
F.S.	1939	11,253	2,403	176	9,747	16,916	1,126,287	6,982	527	17,187.85	5,169.18	1,741.38	24,098.41
Bureau	1939	4,235	4,204	168	5,629	22,687	139,119	1,511	112	3,601.34	388.89	171.58	4,161.81

1/ - Mileage not included in "Miscellaneous Cutoff" or in column "Cut" because miles traversed as planned is similar other than cutoff miles.

Table 97. - Consolidated Summary of Selected Functions by Employer as Reported on Internal Forms
Level I: Egyptian, Fiscal Year Ended 31 December 19__

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Agency / Employer	Total Work Force	Total Leave Days		Productive Pe. riod		Leave Accrued	Value	Overtime Man-days		Costs			
		Earned	Planned		Total	Worked	Value	Labor	Type	Labor	Materials	Other	Total
A.	1954	183	-	-	183	1,013	104,113	243	14	1,210.70	262.40	220.80	1,693.90
B.	4397	492	-	-	492	985	89,200	445	97	890.30	96.00	21.00	1,007.30
C.	1968	282	-	-	282	1,457	96,140	576	12	1,251.90	70.43	31.00	1,353.33
D.	1997	32	-	-	32	192	2,091	11	1	147.00	16.00	13.40	176.40
Total Egypt	10316	1,001	-	-	1,001	3,647	291,544	1,275	124	3,499.90	444.83	286.20	4,230.93
E.	1954	480	-	-	480	720	72,000	72	12	960.00	96.81	20.00	1,076.81
F.	1997	1,005	167	-	1,210	2,420	121,000	242	2	2,420.00	0.00	50.00	2,470.00
Total Canada	3951	1,485	167	-	1,690	3,140	193,000	314	14	3,380.00	96.81	70.00	3,546.81
G.	1997	121	-	-	121	968	96,800	726	11	1,210.00	110.00	0.00	1,320.00
H.	1954	480	-	-	480	720	72,000	72	12	960.00	96.00	20.00	1,076.00
I.	1954	480	-	-	480	720	72,000	72	12	960.00	96.00	20.00	1,076.00
J.	1997	121	-	-	121	968	96,800	726	11	1,210.00	110.00	0.00	1,320.00
Total France	7902	1,202	-	-	1,202	3,376	337,600	2,526	46	4,340.00	412.00	40.00	4,792.00
K.	1954	480	-	-	480	720	72,000	72	12	960.00	96.00	20.00	1,076.00
L.	1997	121	-	-	121	968	96,800	726	11	1,210.00	110.00	0.00	1,320.00
M.	1997	1,451	167	-	1,618	4,988	498,800	3,990	70	6,650.00	453.27	0.00	7,103.27
N.	1954	480	-	-	480	720	72,000	72	12	960.00	96.00	20.00	1,076.00
O.	1997	121	-	-	121	968	96,800	726	11	1,210.00	110.00	0.00	1,320.00
Total Germany	7902	1,202	-	-	1,202	3,376	337,600	2,526	46	4,340.00	412.00	40.00	4,792.00

Table 20 — Descriptive Summary of Second Examination Performed on Optimal Forest Loans of Minnesota, from Inception to December 31, 1939.

1 Lender Performing Work	2 Year Work Done	3 Acres acres Seeded	4 White Planted	5 Pine Site	6 Prot. Total	7 Gross acres Marked	8 Est. Pines Felled	9 Average Labor	10 Super.	11 Loans	12 Super.	13 Gross Other	14 Total
						Chippewa							
F.S.	1935	-	-	-	-	32	-	-	-	-	-	-	-
F.S.	1936	1,005	-	-	1,005	2,381	31,446	340	25	$588.00	$122.87	$34.16	$
F.S.	1939	-	55	-	55	101	16,470	109	7	217.50	39.69	31.17	-
Bureau	1939	888	33	136	587	1,885	20,930	196	10	576.18	38.14	3.66	
F.S. Purchase				-									
Total Forest													
						Superior							
F.S.	1937	-	111	-	111	219	4,228	85	4	169.50	22.84	27.26	
F.S.	1938	1,782	236	-	1,960	3,214	235,314	769	67	1,579.00	356.29	110.59	
F.S.	1939	1,697	110	-	1,807	3,191	12,877	324	32	648.00	123.04	38.08	
Total Forest													
						Total National Forests							
F.S.	1935	-	-	-	-	32	-	-	-	-	-	-	-
F.S.	1936	1,005	-	-	1,005	2,381	31,446	340	25	588.00	122.87	34.16	
F.S.	1937	-	111	-	111	219	4,228	85	4	169.50	22.84	27.26	
F.S.	1938	1,782	236	-	1,960	3,214	235,314	769	67	1,579.00	356.29	110.59	
F.S.	1939	1,697	110	-	1,807	3,191	57,147	433	39	865.50	163.71	69.25	
Bureau	1939	888	33	136	587	1,885	20,930	196	10	576.18	38.14	3.66	
F.S. Purchase				-									
Total Forest													

Table 29a - Cumulative Summary of Second Examination Performed on National Forest Lands of Wisconsin, From Inception to December 31, 1979.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Agency Performing Exam	Year Stock Sown	Stock Sown & P Performed FY				Stock Acres	No. Units	$ Exp. Man-hours			Cost Per		
		Entire	Blocks	Sites	Total	Acres			Days	Other			
						Chequamegon National Forest							
F. S.	1977	25	961	-	961	917	12,757	585	17	$763.50	$0.79	$17.44	$
F. S.	1979	20	1,997	-	1,997	3,001	23,535	967	24	$1,000.00	$0.50	$19.00	$
Total Forest		45	2,958	-	2,958	3,918	36,292	1,552	41	$1,763.50	$0.60	$18.14	$
						Nicolet National Forest							
F. S.	1979	4	141	-	141	0	1,000	119	4	$1,000.00	$6.00	$8.00	$
						Total National Forests							
F. S.	1978	25	961	-	961	917	12,757	585	17	$763.50	$0.79	$17.44	$
F. S.	1979	24	2,138	-	2,138	3,001	24,535	1,086	28	$1,000.00	$0.47	$19.00	$
Grand Total		49	3,099	-	3,099	3,918	37,292	1,671	45	$1,763.50	$0.57	$18.14	$

Table 30. - Cumulative Summary of Insect Observations Reported on National Forests in North Central Region, From Inception to December 31, 1939.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Agency Performing Work	Year Work Done	Gross Acres Value Plotted	Plot Prot. Sig.	Total	Acres Worked	No. Trees Felled	Man-days Labor	Super.	Costs Labor	Mater.	Other	Total
Total National Forests, North Central Region													
F.S.	1934	300	-	300	179	16,925	92	14	$369.00	$6.16	$32.01	$407.17
F.S.	1935	-	-	-	69	-	-	-	-	-	-	-
F.S.	1936	1,166	-	1,166	3,398	215,558	1,867	58	2,156.50	104.75	164.89	2,426.14
F.S.	1937	1,097	518	2,375	4,458	75,805	565	39	1,334.00	259.83	105.54	1,699.37
F.S.	1938	2,790	406	3,196	5,408	334,445	1,974	116	3,695.00	537.74	332.10	4,564.84
F.S.	1939	2,909	1,309	4,218	6,891	131,960	1,334	98	2,706.00	580.53	691.65	3,978.18
Summary	1934	226	33	166	367	1,385	30,990	136	10	376.50	38.44	1.66	416.60
F.S. Total													
Other Total													
Grand Total													

Table 31. - Cumulative Summary of Initial Local Control Performed on Indian Service Lands in Minnesota From Inception to December 31, 1939.

1 Agency Performing Work	2 Year Work Done	3 Gross Acres Worked Native	4 Gross Acres Worked Planted	5 Gross Acres Worked P.C. Sites	6 Gross Acres Worked Total	7 Gross Acres Worked	8 No. Miles Rolled	9 6-hour Man-days Labor	10 Super.	11 Costs Labor	12 Costs Super.	13 Costs Other	14 Total
Red Lake Indian Reservation													
I.S.	1933	1,948	-	-	1,948	1,766	[illegible]	1,011	74	$2,154.65	$436.08	-	$2,590.73
I.S.	1934	2,045	133	-	2,178	10,905	4,068,381	5,898	123	23,989.72	690.64	$3,589.40	[illegible]
I.S.	1935	1,009	-	-	1,009	1,923	[illegible]	1,792	114	1,180.34	771.70	466.34	[illegible]
I.S.	1936	1,192	-	-	1,192	1,771	372,413	681	43	1,720.02	365.82	251.01	[illegible]
I.S.	1939	142	-	-	142	1,195	172,150	30	30	1,150.89	278.17	451.31	1,874.37
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
White Earth Indian Reservation													
Various	1933	195	-	-	195	530	55,128	177	14	269.50	93.83	83.21	347.04
I.S.	1937	22	-	18	40	256	97,536	287	23	536.10	101.09	177.20	814.39
I.S.	1938	134	-	-	134	319	136,654	402	21	360.18	88.80	193.48	642.46
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Grand Portage Indian Reservation													
I.S.	1936	80	-	-	80	127	393,277	370	28	773.25	159.36	99.77	1032.38
I.S.	1937	225	-	-	225	681	331,118	968	64	600.62	209.48	115.11	1,125.21
I.S.	1938	Borrow	-	-	-	-	65,160	229	33	836.00	121.00	75.79	1032.79
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Various Indian Reservations													
I.S.	1938	-	-	-	-	40	27,720	84	20	250.00	107.60	-	357.60
I.S.	1939	72	-	-	72	200	110,430	285	32	583.80	139.80	22.14	745.74
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Red Lake Dike Reservation													
I.S.	1936	200	-	-	200	1,687	161,376	241	34	632.00	137.00	31.49	800.49
I.S.	1937	1,110	-	-	1,110	1,580	190,086	171	30	328.78	104.18	40.04	472.96
I.S.	1938	42	-	-	42	93	2,691	9	3	163.00	30.78	10.00	203.78
I.S.	1939	[illegible]	[illegible]	[illegible]	[illegible]	170	1,000	13	3	93.00	30.00	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
I.S.	[illegible]	18	150	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
I.S.	[illegible]	[illegible]	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Various	[illegible]	175	-	-	175	178	[illegible]	177	14	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
I.S.	[illegible]	80	-	-	280	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
I.S.	[illegible]	[illegible]	-	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
I.S.	[illegible]	1,530	40	-	1,730	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
I.S.	[illegible]	[illegible]	[illegible]	40	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 33. - Cumulative Summary of Initial Local Control Performed on Indian Service Lands in North Central Region, From Inception to December 31, 1939.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Agency Performing Work	Year Work Done	Gross Acres W.P. Protected: Native	Planted	Pl. Sites	Total	Gross Acres Worked	No. Miles Telle	8-hour Man-days: Labor	Super.	Costs: Labor	Super.	Other	Total
I. A.	1921a	1,274	-	-	1,274	2,370	176,018	240	15	$530.00	$120.00	$48.92	$698.92
I. S.	1930a	150	-	-	150	350	142,092	247	18	627.00	126.00	22.00	775.00
I. S.	1933	6,788	3	-	6,788	15,877	1,755,489	4,333	482	9,475.69	6,779.72	796.28	17,051.69
I. S.	1934	11,733	133	-	11,466	20,068	7,035,680	17,087	533	37,685.34	2,878.14	4,511.89	45,075.37
I. A.	1936	4,957	-	-	4,951	9,761	6,591,435	14,164	498	34,795.24	2,690.23	1,610.76	39,096.23
Bureau	1936	195	-	-	195	590	55,648	177	14	865.50	98.85	23.21	987.56
I. S.	1936	3,163	-	-	3,163	5,720	2,847,053	7,370	218	13,610.53	1,247.89	940.47	15,798.89
I. S.	1937	8,648	866	18	8,329	22,543	3,654,552	11,105	467	26,826.25	2,619.71	3,352.89	32,798.85
Bureau	1937	192	-	-	192	395	720	47	1	64.00	8.00	0.93	72.93
I. A.	1939	2,988	390	-	2,988	7,082	1,446,536	4,301	291	8,250.40	1,460.55	1,242.73	10,953.68
I. S.	1939	1,908	154	-	2,112	4,320	1,776,455	4,563	358	10,488.35	1,405.05	1,321.80	13,215.20
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
National Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

a - Man-days Labor and Supervision, and distribution of costs by subsequent inspections.

Table 5/a. - Cumulative summary of Forest Productivity Surveys on Indian Forests Lands of Minnesota, Year Compiled to December 31, 1939.

1 Agency Performing Work	2 Year Work Done	3 Gross Acres W.P. Surveyed	4 Pine	5 Mix.	6 Total	7 Optim acres Worked	8 Bd. Ft. Sawlog Timber Scaled	9 Sawlog Trees per Acre	10 Sawlog Trees Cull.	11 Cost Labor	12 Cost Supv.	13 Cost Other	14 Cost Total
Red Lake Indian Reservation													
L. S.	1936	6,427	-	-	6,427	7,050	385,796	2,151	100	$5,511.50	$611.45	$423.89	$6,546.84
L. S.	1937	2,785	-	-	2,785	4,000	570,215	1,913	111	3,973.44	748.68	37.42	4,759.54
L. S.	1938	908	-	-	908	1,990	564,956	1,366	69	1,599.33	356.43	393.27	2,349.03
L. S.	1939	17	58	-	168	168	4,196	24	30	71.96	150.98	37.41	260.35
Total Red Lake		10,137	58	-	10,288	13,208	1,525,163	5,454	310	$11,156.23	$1,867.54	$891.99	$13,915.76
Pembina Indian Reservation													
L. S.	1937	72	-	-	72	80	2,012	27	0	$80.50	$21.15	$4.54	$106.19
Cass Lake Indian Reservation													
L. S.	1936	6,427	-	-	6,427	7,050	385,796	2,151	100	$5,511.50	$611.45	$423.89	$6,546.84
L. S.	1937	2,857	-	-	2,857	5,090	606,201	2,150	439	4,357.84	798.80	98.95	5,255.59
L. S.	1938	908	-	-	908	1,891	564,960	1,368	69	1,599.33	356.98	394.59	2,350.90
L. S.	1939	17	58	-	168	168	4,196	24	30	71.96	150.98	37.41	260.35
Total Cass		10,209	58	-	10,360	13,199	1,560,953	5,693	638	$11,540.63	$1,918.21	$954.84	$14,413.68

Table 55. - Cumulative Summary of Revenue Irrigation Performed on Indian Service Lands of Wisconsin, From Inception to December 31, 1934

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Agency Performing Work	Year Work Done	Acres Serve Existing	Flood-ed	Ft. Bldgs	Total	Gross Acres Reached	No. Effec Public	Labor	Super.	Costs Labor	Super.	Other	Total
Lac Court Oreilles Indian Reservation													
I. S.	1930	561	-	-	561	2,302	55,033	315	15	$896.55	$55.58	$201.92	$1,154.05
I. S.	1935	105	-	-	108	250	75,305	270	10	375.50	39.44	81.35	496.29
Subtotal	Total	666	-	-	669	2,552	130,338	585	25	$1,272.05	$95.02	$283.27	$1,650.34
Lac du Flambeau Indian Reservation													
I. S.	1933	1,041	-	-	1,041	1,041	45,000	77	12	$1,142	$ 87.27	$ 50.73	$ 280.00
Menominee Indian Reservation													
I. S.	1926a	40	-	-	40	71	21,553	36	7	$0.00	$0.00	$22.30	$ 72.30
I. S.	1930a	80	-	-	80	90	5,004	35	3	30.00	15.00	5.00	50.00
I. S.	1933	800	-	-	800	1,420	290,171	871	198	1,861.67	704.75	275.86	2,842.28
I. S.	1934	350	-	-	350	906	45,663	166	11	374.30	65.27	31.57	470.60
I. S.	1936	110	-	-	110	110	5,611	100	2	882.00	18.00	11.70	311.70
I. S.	1938	1,739	-	-	1,739	2,930	570,960	2,902	62	6,825.15	651.00	156.29	7,632.44
I. S.	1939	598	-	-	598	1,134	155,566	1,109	119	3,899.70	300.34	255.73	4,455.77
Subtotal	Total	3,717	-	-	3,717	6,661	1,100,528	5,219	402	$14,872.82	$1,754.36	$ 508.85	$17,136.03
Total Indian Reservations													
I. S.	1926a	40	-	-	40	71	21,553	36	7	90.00	33.00	22.30	147.30
I. S.	1930a	80	-	-	80	90	5,004	35	3	30.00	15.00	5.00	50.00
I. S.	1933	800	-	-	800	1,420	290,171	871	198	1,861.67	704.75	275.86	2,842.28
I. S.	1934	350	-	-	350	906	45,663	166	11	374.30	65.27	31.57	470.60
I. S.	1936	110	-	-	110	110	5,611	100	2	882.00	18.00	11.70	311.70
I. S.	1938	4,137	-	-	4,137	10,877	860,516	3,986	107	7,922.90	899.29	377.35	9,199.54
I. S.	1939	706	-	-	706	1,424	230,871	1,705	195	4,275.20	335.38	321.06	4,931.64
Grand Total		6,223	-	-	6,223	14,828	1,460,389	6,902	523	$16,411.07	$2,071.69	$1,045.84	$19,528.60

a - Man-days labor and Supervision, and distribution of costs by sub-headings are estimated.

Table 36. - Cumulative Summary of Erosion Control Work Performed on Indian Service Lands in North Central Region, from 1935 through 1939.

1 Agency Performing Work	2 Year Work Done	3 Grass Acres N. F. Protected Native	4 Fl. Planted	5 Sites	6 Total	7 Gross Acres Worked	8 No. Sites Built	9 Labor Man-days Labor	10 Supervisory	11 Costs Labor	12 Supervisory	13 Other	14
I.E.	1936	40	-	-	40	71	21,450	36	1	$60.00	$15.00	$22.50	$
I.E.	1936	20	-	-	20	20	5,004	15	3	30.00	15.00	5.00	
I.E.	1937	600	-	-	600	1,420	270,171	471	198	1,561.39	706.79	275.58	
I.E.	1938	350	-	-	350	506	48,585	166	11	774.10	66.27	31.91	
I.E.	1939	4,731	-	-	4,737	7,140	532,107	2,519	102	5,793.93	659.43	185.65	
I.E.	1937	2,057	-	-	2,057	3,000	604,251	2,130	139	4,257.24	720.40	38.36	
I.E.	1938	5,059	-	-	5,059	12,875	1,195,405	4,956	176	11,322.23	1,293.33	916.74	
I.E.	1939	737	92	-	829	2,197	232,065	1,710	135	4,336.26	894.56	37.17	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

* - Man-days lost by completion, and distribution of work by responsibility are tabulated

Table 37. - Cumulative Summary of Tribal Organization Performed on Indian Service Lands in Forest Lookout Service, from 1934 through 1939.

1 Agency Performing Work	2 Year Work Done	3 Gross Acres Native	4 Planted	5 F. Protected Fl. Since	6 Total	7 Gross Acres Worked	8 Co. Fiber Miles	9 3-hour Man-days Labor	10 Super.	11 Labor	12 Cost Super.	13 Other	14 Total
Wisconsin Menominee Indian Reservation													
I.E.	1934	90	-	-	90	90	1,288	92	1	$75.00	$6.25	$4.80	$
I.E.	1939	286	-	-	286	375	15,171	149	32	1,090.75	93.00	14.65	1,1

Table 38A. - Percent of Acres Worked and Checked in Each Tiles per Acre Class by States, North Central Region, 1959.

State	Acres Worked and Checked	Tiles Feet of Live Size per Acre After Irrigation Classes 0.0-5.0	5.1-15.0	15.1-25.0	25.1-50.0	Over 50.0	Total
Indiana	6,693	61.6%	33.1%	5.3%	-	-	100.0%
Iowa	8,203	76.0	15.5	8.3	0.2%	-	100.0
Michigan	88,635	70.4	18.1	10.1	0.3	0.1%	100.0
Minnesota	43,435	70.4	25.3	2.7	1.5	0.1	100.0
Ohio	58,750	63.3	25.3	9.1	1.3	Trace	100.0
Wisconsin	17,251	67.5	23.3	7.9	0.3	-	100.0
North Central	[illegible]	[illegible]	[illegible]	7.0	[illegible]	Trace	100.0

Table 38B. - Percent of Acres Worked and Checked in Tile Tiles per Acre Class by Irrigation Type, North Central Region, 1959.

Irrigation Type	Acres Worked and Checked	Tiles Feet of Live Size per Acre After Irrigation Classes 0.0-5.0	5.1-15.0	15.1-25.0	25.1-50.0	Over 50.0	Total
Irrigated Crops	14,297	49.0	37.0%	13.7%	1.0%	0.3%	100.0%
Pasture Crops	11,837	82.2	13.8	3.6	0.4	-	100.0
Total	[illegible]	71.8	24.5	3.7	Trace	-	100.0

Table 35. - Post Checking in 1959 of Areas Previously Surveyed, North Central Region

State	Examined			Rework Necessary			No Maintenance			
	No. Areas	Acres W.P.	Acres Control Area	No. Areas	Acres W.P.	Acres Control Area	No. Areas	Acres W.P.	Acres Control Area	Man-days Used
Illinois	1	320	2,089	1	320	2,089	0	0	0	0
Michigan	24	7,739	10,250	24	4,219	5,704	3	580	1,796	10
Minnesota	1	6,819	11,000	1	5,419	11,998	0	0	0	377
[illegible]	26	[illegible]	[illegible]	26	[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]

1 - Estimated
2 - Observed No Major Activities

Table 41. - Summary of Cultivated Black Currant Eradication,
North Central Region, 1934.

State	Number Counties Where Work was Done	Total Number Inspections	Total Number Locations	Plants Found	Destroyed Uprooting	Destroyed Cutting	Destroyed Burning	Average Number Plants per Location (5 or +)	Average No. Plants per Location	Average No. Plants per 1000 Square Feet Inspected	Number Plants per Square Foot
Total Small Plants											
Iowa	45	20,101	164	791	660	1,480	451	3.1	5.31	0.65	
Michigan	81	149,265	548	2,605	971	2,550	84	3.1	4.75	0.27	
Minnesota	3	4,145	23	105	1	11	54	3.1	4.56	0.25	
Total Small Plants											
Iowa	4	10,497	50	280	57	48	115	4.3	5.46	0.27	
Michigan	11	55,463	49	81	15	280	301	1.7	1.65	0.01	
Minnesota	1	11,251	37	140	11	25	140	3.7	3.78	0.01	
Ohio	43	60,432	281	2,169	184	1,132	21	6.6	7.71	0.36	
Wisconsin	2	11,241	39	139	29	13	2,314	3.3	6.43	0.01	

Table 1.1a - Analysis of Cultivated Black Cutworm Beachers Wore
Performed in the Week Ended [illegible] 1932.

State	Decrease or Increase	Larvae Total	Larvae Largest	Pupae Total	Pupae Largest	Parasitized Larvae	Parasitized Pupae	Total Found Parasitized	Per Cent Original Total	Total Found Parasitized	Per Cent Total	Total Found	Total
Kansas	3	294	1,490	65	410	-	-	1	2	17	71	41	165
Nebraska	7	120	2,302	41	71	1	66	-	-	2	0	39	140
Wyoming	27	2,101	11,191	83	109	1	96	49	77	43	102	285	775
Total	37	2,515	14,983	189	590	2	162	50	79	62	173	365	1,080

Table 10 - Cumulative Summary of Cultivated Black Currant Eradication, North Central Region, to December 31, 1951

State	Number Inspections Made	Found Locations	Found Bushes	Cultivated Locations	Cultivated Bushes	Wild Hosts Locations	Wild Hosts Bushes	End-Days Used
Illinois	18,067	592	1,271	61	544	8	217	16
Indiana	65,080	125	2,393	—	—	-	-	540
Iowa	257,959	1,146	6,566	1,300	8,074	76	409	4,963
Michigan	82,091	13,389	138,399	15,398	191,585	37	734	51,184
Minnesota	156,280	3,044	82,251	3,043	20,950	1	1	8,595
Ohio	1,530,303	2,187	73,137	1,956	70,408	15	985	27,182
Wisconsin	27,589	6,168	55,600	6,105	56,136	-	-	10,098
Total	2,131,369	26,651	369,617	27,896	359,697	137	2,349	103,581

Table 43. - Summary of Blister Rust Canker Pruning, North Central Region, 1939.

State	Number Trees Examined	Number Trees Treated	Number Trees Removed	Number Cankers Removed	Man-days Used	Costs Labor	Supv.	Other	Total
Michigan	10,375	2,668	-	3,760	245	$697.74	-	$42.73	$893.40
Minnesota	9,000	1,214	82	2,405	135	677.82	-	-	677.82
Region Total	19,375	3,882	82	6,165	380	$1,375.56	-	$42.73	$1,571.22

Table 44. - Cumulative Summary of Blister Rust Canker Pruning, North Central Region, to 1939.

State	Number Trees Examined	Number Trees Treated	Number Trees Removed	Number Cankers Removed	Man-days Used	Costs Labor	Supv.	Other	Total
Michigan	50,675	17,330	4	30,870	1,088	$3,766.36	-	-	$3,766.36
Minnesota	219,152	8,160	1,155	20,850	898	3,790.36	-	-	3,790.36
Ohio	300	25	7	38	-	-	-	-	-
Region Total	270,127	25,515	1,166	51,758	1,986	$7,556.72	-	-	$7,556.72

Graham

Table 43. - Control Zone Boundary Marking, North Central Region, 1939

State	Number Areas Marked	Acres in Areas Marked	Miles of Boundary Marked	Man-days Used	Costs				Average cost per mile
					Labor	Paper	Other	Total	
Michigan	101	21,660	233	272	$1,050.56	-	$18.43	$1,067.31	$4.54
Minnesota	246	57,748	318	340	892.95	$121.17	132.72	1,146.84	3.62
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 43A - Cumulative Control Zone Boundary Marking,
North Central Region, 1937-1939.

State	Number Areas Marked	Acres in Areas Marked	Miles of Boundary Marked	Man-days Used	Costs				Average cost per mile
					Labor	Paper	Other	Total	
Michigan	160	70,064	1,324	1,232	$1,340.24	-	$276.24	$1,633.77	$1.23
Minnesota	553	135,598	1,779	1,883	1,781.05	$1,340.17	154.73	3,275.95	1.87
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 47. - Expenditures for all Pioneer Water Control Districts
Milwaukee Office, 1959

Account	Expenditure Classification	Expenditure	Field Data	Total
0201(00,00)	Salaries	$3,762.37	$ [illegible]	$ [illegible]
Regular Funds	Expenses	1,000.15	[illegible]	[illegible]
2001(00,00)	Salaries	[illegible]	[illegible]	[illegible]
Regular Funds	Expenses	[illegible]	[illegible]	[illegible]
7(1)(b)	Salaries	[illegible]	[illegible]	[illegible]
W.P.A.	Expenses	[illegible]	[illegible]	[illegible]
0(1)(b)	Salaries	[illegible]	[illegible]	[illegible]
W.P.A.	Expenses	[illegible]	[illegible]	[illegible]
0(1)(b)	Salaries	[illegible]	[illegible]	[illegible]
W.P.A. Adm	Expenses	[illegible]	[illegible]	[illegible]
0(1)(b) 101	Salaries	[illegible]	[illegible]	[illegible]
W.P.A. Adm	Expenses	[illegible]	[illegible]	[illegible]
Forest Service	Salaries	[illegible]	[illegible]	[illegible]
Regular	Expenses	[illegible]	[illegible]	[illegible]
Forest Service	Salaries	[illegible]	[illegible]	[illegible]
C.C.C.	Expenses	[illegible]	[illegible]	[illegible]
All Appalls	Salaries	[illegible]	[illegible]	[illegible]
	Expenses	[illegible]	[illegible]	[illegible]
Grand Total		[illegible]	[illegible]	[illegible]

Table 43 - [illegible] Administrative Expenditure, Wilmington Office, Calendar Year 1999.

Location	Period	Applicants		Salary		Total		Co-salary			Total	
		Pay-able	Amount	Pay-able	Amount	Pay-able	Amount	Travel Allo.	Auto	Total	Pay-able	Amount
13/03/1999	Jan	to June	214	$3,081.60	9.1	$810.13	20.1	$3,860.70	$205.01	$101.96	$347.37	30.1	$4,306.09
[illegible]	01/	to Jan	37.0	1,721.92	-	-	15.0	1,721.92	-	-	-	15.0	1,721.92

Table 53 — Total World Control Regional Supervisors' Travel Time Distribution and Other Time Spent, [illegible]

Grade	Number	Other Time Spent	Total	Percent Other Time of Total
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 57 - Summary of Operating Costs of Commercial-Owned Automobiles and Trucks, Rural Postal Routes, July 1, 1938 to December 31, 1939

Type	No. Cars	Operating Months	Gasoline	Oil and Grease	Tires	Motor and Body Repairs	Minor Parts, Accessories, etc.	Tubes and Storage	Total Costs	Miles per 7/38 or 12/39	Miles per Gal. of Gas	Cost per Mile of Tubes and Storage	Cost per Mile Total
Automobiles													
Trucks													
Combined													

Make	Year	No. Cars	Capacity Gallons	Area ft²	Area ft² Grease	Tires	Engine and Body Weight	Size: Each Tire	Total Cost	Total Value	Cost per mile	Miles per Gallon
Ford	1932	4	700	1,204.42	108.07	43.45	135.69	-	1169.58	11.34	0.0151	17.34
Ford Two	1930	2	500	1004.20	39.76	41.56	987.69	8.25	1,004.00	1.575	0.0211	13.97
Ford T-97	1937	5	2,034	889.42	208.72	139.24	2,000.41	21.25	2,209.92	111.412	0.0138	18.82
Ford "30"	1935	2	984	611.00	60.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Chevrolet	1921	2	1,240	209.39	20.11	40.91	19.92	5.50	317.40	21.774	0.0171	14.20
Chevrolet - Standard	1931	1	592	69.75	12.75	19.45	25.78	-	151.72	7.173	0.0201	24.95
Chevrolet-Master	1930	2	2,009	299.56	77.55	47.20	147.10	6.40	584.25	10.904	0.0187	19.28
Chevrolet-Standard	1935	4	4,120	376.99	210.48	80.97	561.10	10.25	1,263.79	17.571	0.0139	16.38
Chevrolet-Standard	1938	1	2,107	104.80	25.27	26.36	58.17	4.00	240.70	20.170	0.0131	15.10
[illegible]	1939	1	566	64.70	13.00	-	1.78	.50	4.17	2.030	1.1082	17.26
[illegible]	[illegible]	12	30	1,000.14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dodge	1936	1	992	457.50	33.25	50.65	101.53	4.00	346.47	13.305	0.0256	24.38
Ford	1934	3	1,752	237.26	60.09	81.47	61.47	-	340.29	15.224	0.0251	33.60
Plymouth	1935	3	1,500	835.00	76.59	60.40	76.47	5.38	454.98	20.347	0.0217	18.65
Pontiac 6	1937	1	2,000	892.28	92.55	85.15	6.45	6.00	157.47	14.03	0.0253	17.16
[illegible]	[illegible]	8	5,244	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 55. - Operating Costs, Trucks, North Central Region, July 1, 1938 to December 31, 1939, by Makes and Models, Excl. Tolls, Storage and depreciation.

Make	Year	No. Cars	Gasoline Gallons	Gasoline Amount	Oil and Grease	Tires	Engine and Body Repairs	Misc. Wash Etc.	Total Costs	Total Miles	Cost per Mile	Miles per Gallon
Ford-1/2 Ton	1929	1	521	$70.01	$21.33	$20.96	$21.67	$2.03	$136.00	9,296	0.0146	17.84
Ford- Light Delivery	1933	1	751	92.00	24.78	-	68.71	-	185.49	9,115	0.0203	12.14
Ford- 1/2 Ton	1934	7	6,531	871.16	226.73	72.80	303.11	28.38	1,582.18	91,354	0.0173	13.99
Ford- 1/2 Ton	1937	3	4,085	598.37	82.55	10.15	112.69	18.36	822.12	60,905	0.0135	14.91
Total Ford Trucks		12	11,888	1,631.54	355.39	103.91	586.18	48.77	2,725.79	170,670	0.0160	14.36
Chevrolet - Panel	1931	2	703	99.58	21.65	-	37.36	-	158.59	10,553	0.0150	15.02
Chevrolet - 1/2 Ton	1934	2	1,308	198.04	40.53	31.03	80.78	2.68	353.06	16,372	0.0216	12.52
Chevrolet - Panel	1937	2	2,298	345.62	77.77	43.58	67.24	3.45	537.66	31,476	0.0171	13.70
Chevrolet- Sedan Del.	1939	3	1,486	217.55	34.16	-	54.14	5.44	311.29	23,851	0.0131	16.05
Total Chevrolet Trucks		9	5,795	860.79	174.11	74.61	239.52	11.57	1,360.60	82,257	0.0165	14.19
Dodge - 1½ Ton	1933	1	693	115.25	34.52	79.52	26.67	5.03	260.99	6,439	0.0405	9.29
Dodge - 1/2 Ton	1935	33	42,527	6,164.29	1,402.69	435.17	2,028.26	177.11	10,207.52	591,742	0.0172	13.91
Total Dodge Trucks		34	43,220	6,279.54	1,437.21	514.69	2,054.93	182.14	10,468.51	598,181	0.0175	13.84
Total - All Trucks		55	60,903	8,771.87	1,966.71	693.21	2,880.63	242.48	14,554.90	851,108	0.0171	13.97

Table 56. - Cost per 100 Miles of Operation, Excluding Tolls, Storage and Depreciation of Government Cars by Makes and Models, North Central Region, Period July 1, 1938 to Dec. 31, 1939.

Make, Model, Year		No. Cars	Gasoline	Oil & Grease	Tires	Repairs	Misc. Wash, Etc.	Total
Chevrolet, Coach	1939	1	0.64	0.13	-	0.02	0.03	0.82
Chevrolet, Coach	1936	1	0.70	0.14	0.13	0.28	0.02	1.27
Chevrolet, Sedan Del.	1939	3	0.91	0.15	-	0.23	0.02	1.31
Pontiac 6, 4 Door	1937	1	0.82	0.16	0.08	0.25	0.02	1.33
Ford, 1/2 Ton Pickup	1937	3	0.98	0.14	0.02	0.18	0.03	1.35
Ford, Coach "85"	1939	1	0.83	0.20	0.01	0.31	0.03	1.38
Ford, Coach "60"	1937	5	0.71	0.19	0.13	0.33	0.02	1.38
Ford, 1/2 Ton Pickup	1929	1	0.75	0.23	0.23	0.23	0.02	1.46
Plymouth, Coach	1935	1	0.79	0.26	0.07	0.33	0.02	1.47
Chevrolet, Panel Truck	1931	2	0.94	0.21	-	0.35	-	1.50
Ford, Coupe	1931	1	0.93	0.19	0.05	0.34	-	1.51
Essex, Coupe	1934	1	0.88	0.13	0.13	0.39	-	1.53
Chevrolet, Stand.Coach	1935	4	0.88	0.27	0.13	0.41	0.01	1.68
Chevrolet, Panel Truck	1937	2	1.10	0.25	0.14	0.21	0.01	1.71
Dodge, 1/2 Ton Pickup	1935	33	1.04	0.24	0.07	0.34	0.03	1.72
Ford, 1/2 Ton Pickup	1934	7	0.95	0.25	0.08	0.42	0.03	1.73
Chevrolet, Sedan	1931	2	0.95	0.21	0.21	0.35	0.01	1.73
Chevrolet, Master Sedan	1934	2	0.97	0.25	0.15	0.44	0.02	1.83
Chevrolet, Stand. Coach	1934	1	0.93	0.17	0.18	0.75	-	2.03
Ford, Light Delivery	1933	1	1.01	0.27	-	0.75	-	2.03
Chev., 1/2 Ton Pickup	1934	2	1.21	0.25	0.19	0.49	0.02	2.16
Buick, 4-Door	1934	1	0.99	0.24	0.25	0.77	0.01	2.26
Ford, V-8 Sedan	1932	1	1.11	0.31	0.11	1.58	-	3.11
Dodge, 1-1/2 Ton Truck	1933	1	1.79	0.54	1.23	0.41	0.08	4.05
Sub-total Passenger Cars		23	0.83	0.21	0.12	0.40	0.02	1.58
Subtotal Trucks		55	1.03	0.23	0.08	0.34	0.03	1.71
All Autos		78	0.95	0.23	0.09	0.36	0.03	1.67